BOMBARDIER
SERVICES

Standard Practice 1215

EMERGENCY ACTION/CONTINGENCY PLAN
CONTENTS

PURPOSE of the Emergency Action/Contingency Plan:

To assure an orderly and efficient transition from normal operations to emergency situations.

OBJECTIVES for the Emergency Action/Contingency Plan are:

Protect loss of life and property.

Prepare and utilize the facility and staff of West Virginia Air Center to deal with emergency situations.

Confine fire or chemical spill to its place of origin.

Aid outside responding personnel (fire fighters, police, EMT's, Hazmat team) in handling the emergency situation.

Inform employees at West Virginia Air Center of hazards at the facility which may dictate an emergency situation.

The Emergency Action/Contingency Plan will be kept in an orderly format to assure its simplicity in use and will be easy to read. The implementation of the Emergency Action/Contingency Plan will be the responsibility of the Director, Human Resources. When unavailable, the Administrator, Safety, Environmental and Facilities will be contacted. The Plan will be communicated to the employees through their individual safety handbook.

UTILITIES

Electricity is brought to the facility through the north west corner of the facility to the Main Control Room. The electricity is divided into a three-phase power, with a master switch per phase.

Natural gas is utilized to heat the facility. The gas line is located in back of the facility and the regulator is located on the outside of the north side of the facility.

Propane is utilized for forklifts and is delivered on an "as needed" basis, with a small storage of extra propane tanks located in the corner of support area adjacent to Bay 1.

The City of Bridgeport supplies water for normal operations.

No hazardous water is released into receiving creeks or streams. Storm water runoff does not come in contact with the chemicals utilized in the facility. The front of the facility is drained to the south face of the facility facing Route 73. Drainage occurs in both directions through man-made and natural drainage.

Sewage is treated through a public treatment facility for this area. The system under normal conditions is not exposed to any hazardous runoff.

Hazardous waste is captured with a closed loop system. This waste is contained in a steel holding tank for no longer than 90 days. A Hazardous Waste Hauler that meets all EPA and DOT transportation requirements hauls this hazardous waste from the from the facility.

FACILITY HAZARDS:

Facility hazards consist of chemical, physical, and explosive.

Chemical hazards are those that may produce injury or death through contact, inhalation, or ingestion. Employees must be trained on the chemical hazards through the Hazard Communication Program.

Physical hazards are those that may by contact cause injury or death to an employee. Physical hazards can be considered machinery, compressed gases, and confined spaces.

Explosive hazards at West Virginia Air Center consists of propane tanks, compressed gases, jet fuel, explosive squibbs, and paint vapors within the facility.

EMERGENCY TEAM LEADERS

West Virginia Air Center will assure the well-being of its employees by following the guidelines set forth by the Occupational Safety and Health Administration (OSHA 1910.38).

Emergency leadership

West Virginia Air Center has designated approximately one person for every 20 employees to
provide leadership during all emergencies.

Emergency Control Center

The control center will be located in the parking lot directly opposite the front desk reception area or in the front lobby.

Duties of Emergency Leaders

The designated Emergency Team Leaders (ETL) will lead the employees to a designated safe area.

All employees must check in with their assigned Emergency Team Leader immediately after a building evacuation.

The Emergency Team Leaders will inform the Fire Marshall or the Director, Human Resources of any missing or injured employees.

Non-essential employees will be allowed to leave the site after head count. The Emergency Team Leaders have the authority to assign individuals to non-hazardous duties during the emergency situation.

Designated Emergency Team Leaders	Extension
Commercial Maintenance Supervisor on Duty RJ	44 or 53
Commercial Maintenance Supervisor on Duty ASA	706 or 25
Paint Supervisor/Leadperson on Duty	65
~~Commer~~cial Maintenance Supervisor on Duty Bay 2	75
Sheetmetal Supervisor	746
Quality Control Supervisor	718
Stores Lead Person on Duty	36
Stores Lead Person on Duty	48
Stores Person on Duty – second shift	28
Financial Supervisor	45
Engineering Technician	740
Human Resources Designee/Safety	~~50~~ 62
Executive Wing	42
Cafeterial Wing – Manager on Duty	755
Customer Wing	14
Spill Emergency	15

FIRE MARSHALL:

Frank Crislip ---------- 67

DIRECTOR, HUMAN RESOURCES

James Morris ---------- 52

ADMINISTRATOR SAFETY, ENVIRONMENTAL & FACILITIES

Bill
~~Alice Yearego~~ ---------- 62

Response Phases and Authority

Emergency situations will occur in three phases.

The pre-response period begins as soon as an emergency situation is suspected. **Authority over the pre-response phase will be the**

Shift supervisor.

The supervisor will determine whether the incident dictates the implementation of the Emergency Action Plan or can be corrected in-house.

The implementation period begins when an emergency is declared.
Authority of the implementation phase will be the

Director, Human Resources

To activate the plan, the Director will

activate the Emergency Command Center,
call for a facility wide evacuation,
call outside responding agencies,
assemble other members of the emergency response team.
(Management, Public Contact and Technical Contact)

Authority over the Emergency Command Center will be the

Local Fire Chief

The fire chief will coordinate the activities from the Emergency Command Center (located in the parking lot directly across from the front desk reception area, or the reception area itself), and will work closely with West Virginia Air Center's Director, Human Resources to assure that proper coordination of human and mechanical resources are utilized.

Response activity ceases
Authority reverts to the Director, Human Resources

Post Response Period

After the emergency has been declared over, the Director, Human Resources will

call all members of the evacuation team and responding agencies
deactivate the Emergency Control Center

The Director, Human Resources will contact OSHA in the event of a fatality or 5 or more injuries. The local WV Environmental Protection Agency will be notified in case of a major spill. Responsive actions will be taken immediately in order to minimize further damage or injury.

The Emergency Control Center will not be deactivated until all outside responders have left the facility grounds and the site has been declared secure. The post response phase will also be the time to contact governmental agencies about the incident and the magnitude of releases or spills that may have occurred to the environment.

TRAINING

To fully prepare management and staff in the event of an emergency, training will be required of all employees.

Management and Supervisors

Classroom training – Emergency Action/Contingency Plan
Practical training by Fire Marshall

Evacuation Team Leaders

Classroom training – Emergency Action/Contingency Plan
Practical training by Fire Marshall

Employees

Practical Training by Supervisors

- Evacuation Procedures
- Handling small spills
- Fire emergencies
  - Containing a small fire
  - Background and types of portable fire extinguisher to be used
  - High fire hazard areas at WVAC

Employees of WVAC are not to risk their life in taking aggressive action in fighting fires or spills. Only defensive actions are to be taken.

Orientation Training and Annual Re-Training – Human Resources

- Hazard awareness
- Types of hazards found at WVAC
- Proper care necessary to work in hazardous areas
- Necessary personal protective equipment

ALARM SYSTEMS

A bell fire alarm system will be utilized to inform employees of an emergency situation in the facility. The fire alarm system can be accessed through pull boxes located throughout the facility. This system is recognized by a siren alarm.

A sprinkler system is also located throughout the facility and the connected alarm system is a group of fire sirens in the facility and on the outside of the building.

EMERGENCY RESPONSE EQUIPMENT

Fire extinguishers can be found throughout the facility. The fire extinguishers are of ABC rating which covers combustible materials found at WVAC.

All work area have access to dry absorbents or spill pillows to dike or clean up spills. The material is compatible with the types of liquid contaminants found in service at WVAC. Any materials used from the spill kits should be brought to the attention of the Administrator Safety, Environmental & Facilities, who is responsible for maintaining the integrity of the spill kits.

First aid supplies are available in the First Aid Room, located on the first floor in Bay 1. Additional first aid kits are located in the interior shop, the composite shop and Bay 4. Use of the first aid items should be brought to the attention of the Administrator Safety, Environmental & Facilities who is responsible for maintaining the integrity of the first aid kits.

Personal protective equipment can be obtained from stores. All employees are to check with their supervisor before performing any job that is not a routine job task.

OUTSIDE RESPONDING AGENCIES

To assure a quick transition from normal to emergency situations, the local emergency agencies have been provided a copy of this Emergency Action/Contingency Plan.

The Bridgeport Fire Department, Harrison County Emergency Services, and representatives of United Hospital Center's Environmental Team have toured the facility to see the locations of hazardous materials and processes that occur at this facility. In addition, drawings of this facility with hazardous material locations identified have been provided to the Bridgeport Fire Department.

SEVERE WEATHER:

West Virginia Air Center will continuously monitor weather conditions outside of the facility. When tornado watches or warnings are received, or when severe storm conditions exist, West Virginia Air Center will initiate emergency procedures. The Fire Marshall or shift supervisor will notify backup supervisors to assemble their workers on the first floor tunnel area and will conduct a head count.

The Fire Marshall will notify the maintenance supervisor or lead maintenance worker to shut off electricity and natural gas in the facility. In a severe weather conditon the Director, Human Resources or backup, Administrator, Safety, Environmental & Facilities, will monitor the weather conditions. After a storm, evacuation of the facility will be done under the authority of the Fire Marshall who will lead to the safest route to the Emergency Command Center located near the main entrance in the north side parking lot. No one will be permitted to re-enter the facility until advised by the fire mashall.

EVACUATION PROCEDURES:

West Virginia air Center has designated exits for all areas of the facility. Exits can be made through doors as well as garage door openings found on all sides of the facility. All employees working in

Bay 1 will exit the facility using the nearest safe exit and assemble next to the FAA Tower.

Bay 2 will exit and assemble next to the gate by the car parking area and the Hope gas hanger.

Bay 3 and Bay 4 will exit by the closest safe door and assemble in the vacinity of the sprung building.

All office personnel will exit by the nearest safe exit and assemble in the parking lot next to the front door.

A propane leak from the propane tank will require employees to exit directly away from the facility. In this inst6ance, the exit should be upwind.

It is mandatory that all employees familiarize themselves with evacuation maps located in all rooms of this facility. The front desk receptionist is responsible for removing the guest book from the building and delivering it to the Fire Marshall.

BOMB THREAT EMERGENCIES

This procedure defines the action to be taken should a threat be received at this facility.

Tips for Telephone Operator - Bomb Threat Call

A. Interrupt the caller as often as possible by asking questions. This will prevent the caller from completing the message and hanging up. Be polite and act very concerned. Be alert for any clue that might identify the caller.

B. Inform the caller that people are working in the plant, and the detonation of a
bomb could result in death or serious injury to innocent people. The more detailed the information from the caller, the more serious the call should be taken.

C. Try to get answers to the questions covered in the bomb threat check sheet. West Virginia air Center will keep the check sheet available for immediate reference to all designated personnel.

Procedure for Transferring a Bomb Threat Call:

Days (8:00 AM – 5:00 PM)

Attempt to transfer the call in the order listed below. Do not refer calls or relay messages to delegates of the below named individuals. Proceed down the list of principals.

1. General Manager
2. Director, Human Resources
3. Director of Operations
4. Operations Managers
5. Administrator, Safety, Environmental and Facilities
6. Production Supervisors

If the call cannot be transferred, try to involve the caller in a discussion, obtain information, and carefully log the working of the call and then notify one of the above.

Nights, Week-ends or Holidays:

Attempt to transfer the call in the order listed below.

1. General Manager
2. Director of Operations
3. Operations Manager
4. Shift Supervisor

The shift supervisor will be in charge of the assessment and action to be taken. He will do this until one of the above assumes the duties. The shift supervisor will use the Maintenance Manager's office to coordinate this activity.

AT ALL TIMES:

Establish Emergency Assessment Center.
(Maintenance Manager's office or Emergency Control Site outside the building.

1. Notify law enforcement every time there is a bomb threat.

2. Ask the State Police during bomb threat for advice.

3. Issue any orders regarding the emergency.

4. May evacuate people not essential to safe operation.

5. May alert utility companies.

6. Bomb Search Procedure

   Take direction from the law enforcement officers responding to the bomb threat call.

7. If a suspicious device is detected.

   Do not touch!
   Evacuate personnel within at least 300 feet
   Alert law enforcement officials if on hand; otherwise, call 911.

Frequently seen devices include letter bombs, soft cover pocket book bombs, hard cover book bombs, manila envelope bombs, and the cardboard box bombs. While some are delivered by U.S. Mail, they may come by private carrier or courier.

Personnel, particularly mail handlers, should be alert to recognize suspicious looking items. Mail should be separated into "personal" and "business". Although there is no standard detection method, the following recognition points are provided by the International Association of Bomb Technicians and Investigators:

IF YOU HAVE A SUSPICIOUS LOOKING LETTER OR PACKAGE:

--DO NOT TRY TO OPEN IT! ISOLATE IT AND EVACUATE EVERYONE TO A SAFE DISTANCE. NOTIFY LOCAL POLICE AND AWAIT THEIR ARRIVAL.

SPILL EMERGENCY

Bay 3 has a "Closed Loop" recovery system. Bay 4 has alternate closed loop system.

All water entering the floor drains goes into the drain system through the stainless steel pit tank then pumped from the pit tank to the floor tank in Bay 3.

The stainless steel pit tank is inside a secondary concrete pit. In this pit is a set of pumps. The pumps are operated by a float switch. When the pumps are turned on, the float switch turns on warning lights in the hallway outside Bay 3 to indicate the pit pumps are operating.

The floor tank has a float system installed and it is marked to show when the tank is empty and approximately ¾ full. The waste water is collected in the floor tank (for a period not to exceed 90 days) for transportation to a disposal site by an approved waste hauler.

OVERFLOW OF STAINLESS STEEL TANK

1. Turn off water supply to Bays 3 and 4. (Along wall adjacent to hangar doors.)
2. Ensure pit pumps are working.
3. Prevent water from overflowing out of pit (outside in ground tanks for Bays 3 and 4)
4. Investigate reason for overflow in stainless steel tank.
5. Prohibit further operations until problem is resolved.

OVERFLOW OF FLOOR TANK

1. Shut off water in both Bays 3 and 4.
2. Ensure water from tank is directed into Bay 3 floor drains by damming, squeeges, etc.
3. Investigate overflow problem.
4. Arrange for an approved transporter to pump tank.
5. Prohibit further stripping operations until problems are resolved.

SPILL FROM TRANSPORTER

1. Contain spill as quickly as possible with appropriate damming, drying materials.
2. Direct water to pits of Bays 3 and 4
3. Notify Director, Human Resources
4. Notify Bantam Environmental – Stuart Pollick 1-215-857-5177
5. If spill is of an uncontainable size, notify Ryan Environmental 842-5578 for Response and assistance.
6. If necessary, Director, Human Resources will notify government agencies.

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LIST OF EMERGENCY TELEPHONE NUMBERS

For administrative or informational purposes only:

EMERGENCY PLANT CONTACTS

Mike Kanalay, Public Contact ------------ 842-8766
Administrator, Safety, Environmental & Facilities ------------ 622 8319
David Turner, Facilities Contact ------------ 584 4038
Tim Cottrill, Facilities Backup Contact ------------ 873 2408
Bob Wright, Technical Contact ------------ 472 2989

FIRE DEPARTMENT

Bridgeport ------------ 911

HAZMAT CONTACTS

Chemtrec------------ 1 800 424 9300
Harrison County Hazmat Team ------------ 911
Ryan Environmental ------------ 842 5578

POLICE

West Virginia State Police ------------ 624 7573
Harrison County Sheriff's Office ------------ 624 8550
Bridgeport Police ------------ 842 6209

HOSPITAL

United Hospital Center ------------ 624 2121

MEDICAL SERVICES

Harrison County Emergency Services ------------ 623 6559
Harrison County Emergency Management (Fred Smart) ------------ 623 6559
Harrison County Commission ------------ 624 9700
Poison Control Center (Medical Center) ------------ 800 352 8315
Ambulance Emergencies ------------ 911

UTILITIES

Water – City of Bridgeport ------------ 842 6201
Electricity – Allegheny Power ------------ 1 888 255 3443
Telephone – C&P Telephone Company ------------ 623 6801
LP Gas ------------ 622 3911
Hope Gas Company ------------ 623 8600

Attachment J

Emergency Contact Telephone Number
724-568-3623

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. W.V.D.9.8.8.7.7.6.8.5.2 | Manifest Document No. 0.0.1.7.9 | 2. Page 1 of 1 | Information in the shaded areas is not required by Law.

GENERATOR

3. Generator's Name and Mailing Address
Bombardier Aerospace dba West Virginia Air Center
2400 Aviation Way
Bridgeport, WV. 26330

4. Generator's Phone (304) 842-6300

A. State Manifest Document Number: SAME
B. State Generator's ID: SAME

5. Transporter 1 Company Name: McCutcheon Enterprises, Inc
6. US EPA ID Number: P.A.D.0.1.3.8.2.6.8.4.7
C. State Transporter's ID:
D. Transporter's Phone: 724-568-3623

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
Waste Management Of Ohio, Inc
3956 State Route 412
Vickery, Ohio 43464
10. US EPA ID Number: O.H.D.0.2.0.2.7.3.2.1.9
G. State Facility's ID:
H. Facility's Phone: 419-547-7791

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Hazardous Waste Liquid, N.O.S., 9, NA3082, III (Water, Formic Acid, Cadmium, Chromium, Lead)		1	T	0.4775	G	D006 D007 D008
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
Work Order # 531647

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Use Gloves and Goggles
Approval Code AC3174

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimized the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: ROBERT WRIGHT | Signature: Robert Wright | Month 1 Day 2 Year 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Edgar Groff | Signature: Edgar Groff | Month 1 Day 2 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: | Signature: | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Mary Post | Signature: Mary Post | Month 1 Day 2 Year 99

ORIGINAL — RETURN TO GENERATOR

J-2

WASTE MANAGEMENT OF OHIO, INC.

- *CERTIFICATE OF DISPOSAL* -

Generator: *West Virginia Air Center*
BENEDUM AIRPORT
BRIDGEPORT, WV 26330

DATE REC'D	*MANIFEST #*	*RECIEPT CONTROL FORM #*	*PROFILE*	*GALLONS*	*DISPOSAL METHOD*
12-13-99	00179	144104	AC3174	4605	*DEEPWELL INJECTION*

DISPOSAL FACILITY: *WASTE MANAGEMENT OF OHIO, INC.*
3956 STATE ROUTE 412
VICKERY, OHIO 43464

AUTHORIZED SIGNATURE Jeffrey T. Cross

TITLE OPERATOR 2

11/~~11/98~~ LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE II) VIC-AC3174

J-3

Generator Name: WEST VIRGINIA AIR CENTER Manifest Doc. No.: 00179

Profile Number: AC3174 State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2) Check ONE: Nonwastewater X Wastewater
2. If this waste is subject to any California List restrictions enter the letter from below (either A, B.1, or B.2) next to each restriction that is applicable:
   ___ HOCs, ___ PCBs, ___ Acid, A Metals, ___ Cyanides
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent and California List treatment standards are listed on the following page. If F039, multi-source leachate applies those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		6. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	~~D002~~ SCP	CWA or Class I managed corrosive char. wastes		A
2	D006		X	A
3	D007		X	A
4	D008		X	A

To identify F039 or D001-D043 underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: X
If no UHCs are present in the waste upon its initial generation check here:
To list additional USEPA waste code(s) and subcategorie(s), use the supplemental sheet provided (CWM-2005-B) and check here:

HOW MUST THE WASTE BE MANAGED? In column 6 above, enter the letter (A, B1, B2, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.

A. RESTRICTED WASTE REQUIRES TREATMENT
This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).
For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)
"I certify under penalty of the law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS
"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE
This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 6 above.
For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT
"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above." "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth on 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certifications, including the possibility of a fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS
This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature Robert Winslow Title Supervisor Date 12-17-99

Attachment K

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION

RECEIPT FOR SAMPLES

Samplers' Signature	Name of Facility	
Joyce Moore Stanley J. Marshall	WVAC	
Split Samples Requested (Yes) No	Facility Location: Benedum	Facility Address: 2400 Aviation Way Bridgeport, WV 26330

Sample Numbers	Date	Time	Comp.	Grab	Split Sample	Station Description	No. of Containers	Remarks
008210A	1/28/00	12:05		✓		Secondary Containment	1	
008210B	↓	12:05		✓		" "	1	
008210C	↓	12:05		✓		" "	1	

Agency Representative (Signature)	Facility Representative (Signature)	Telephone
Joyce Moore	W Pulling	(304) 842-6300
Date: 1/28/00 Time: 12:14 pm	Title: Mgr EH&S Date: 1/28/00 Time: 1215 PM	

9/92 White - Facility Yellow - Shipment Pink - Sampler's Copy

Attachment L

RELIANCE LABORATORIES, INC.

POST OFFICE BOX 625
10 BENEDUM INDUSTRIAL PARK ROAD
BRIDGEPORT, WV 26330-0625
VOICE 304-842-5285 FAX 304-842-5351
E-MAIL <reliancelabs@westvirginia.net>

ENVIRONMENTAL ANALYSTS AND CONSULTANTS

ONE EAGLE PLAZA, SUITE I
HEDGESVILLE, WV 25427
VOICE 304-754-7360
FAX 304-754-7475

Wednesday, February 23, 2000

DIVISION OF ENVIRONMENTAL PROTECTION

OFFICE OF WASTE MANAGEMENT
1304 Goose Run Road
Fairmont, WV 26554

Sample I.D: A
SECONDARY CONTAINMENT 008210
Lab.Number: 36587-2000-W

PARAMETER	VALUE	UNITS	METHOD	MCL	MDL	DATE/TIME ANALYZED	ANALYST
TCLP		mg/l**	EPA 1311			2/9/00 10:00	B.Plemons
Total Arsenic	ND	mg/l**	EPA 6010	5.0	0.50	2/23/00 10:56	B.Plemons
Total Barium	ND	mg/l**	EPA 6010	100.0	0.10	2/23/00 10:56	B.Plemons
Total Cadmium	ND	mg/l**	EPA 6010	1.0	0.04	2/23/00 10:56	B.Plemons
Total Chromium	ND	mg/l**	EPA 6010	5.0	0.10	2/23/00 10:56	B.Plemons
Total Lead	ND	mg/l**	EPA 6010	5.0	0.10	2/23/00 10:56	B.Plemons
Total Mercury	ND	mg/l**	EPA 7470	0.2	0.05	2/9/00 14:00	S.Gay
Total Selenium	ND	mg/l**	EPA 6010	1.0	0.50	2/23/00 10:56	B.Plemons
Total Silver	ND	mg/l**	EPA 6010	5.0	0.10	2/23/00 10:56	B.Plemons
Particle Size	-0.375	inches	EPA 13ll			2/9/00 10:00	B.Plemons
Percent Solids	<0.5	%	EPA 1311			2/9/00 10:00	B.Plemons

Date Sampled: 2000/01/28 12:05
Sample Submitted By: J.MOORE
Date Sample Received: 2000/01/28 15:15
ND = Not Detected
MDL = Minimum Detectable Limit
MCL = Maximum Contaminant Level

REVIEWED BY: _____
William F. Kirk

* TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd Edition
**mg/l in Leachate

L-2

RELIANCE LABORATORIES, INC.

POST OFFICE BOX 625
10 BENEDUM INDUSTRIAL PARK ROAD
BRIDGEPORT, WV 26330-0625
VOICE 304-842-5285 FAX 304-842-5351
E-MAIL <reliancelabs@westvirginia.net>

ENVIRONMENTAL ANALYSTS AND CONSULTANTS

ONE EAGLE PLAZA, SUITE I
HEDGESVILLE, WV 25427
VOICE 304-754-7360
FAX 304-754-7475

Monday, February 28, 2000

DIVISION OF ENVIRONMENTAL PROTECTION

OFFICE OF WASTE MANAGEMENT
1304 Goose Run Road
Fairmont, WV 26554

Sample I.D: B
SECONDARY CONTAINMENT 008210
Lab.Number: 36588-2000-W

PARAMETER	VALUE	UNITS	METHOD	MCL	MDL	DATE/TIME ANALYZED	ANALYST
TCLP		mg/l**	EPA 1311			2/16/00 9:24	B.Plemons
Benzene	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Carbon Tetrachloride	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Chlorobenzene	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
1,2-Dichloroethane	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Chloroform	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
1,1-Dichloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Methyl Ethyl Ketone	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Trichloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Tetrachloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 9:24	B.Plemons
Vinyl Chloride	ND	mg/l**	EPA 8260B		0.002	2/24/00 9:24	B.Plemons

Date Sampled: 2000/01/28 12:05
Sample Submitted By: J.MOORE
Date Sample Received: 2000/01/28 15:15
ND = Not Detected
MDL = Minimum Detectable Limit
MCL = Maximum Contaminant Level

REVIEWED BY: _____
William F. Kirk

* TEST METHODS FOR EVALUATING SOLID WASTE.
SW-846, 3rd Edition
**mg/l in Leachate
Surrogate Recovery: 1,2-Dichloroethane-d4 103.8 %Recovery
Toluene-d8 90.3 %Recovery 4-Bromofluorobenzene 83.9 %Recovery

L-3

RELIANCE LABORATORIES, INC.

POST OFFICE BOX 625
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ENVIRONMENTAL ANALYSTS AND CONSULTANTS

ONE EAGLE PLAZA, SUITE I
HEDGESVILLE, WV 25427
VOICE 304-754-7360
FAX 304-754-7475

February 11, 2000

WV DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF WASTE MANAGEMENT
1304 GOOSE RUN ROAD
FAIRMONT, WV 26554

SAMPLE I.D.: C SECONDARY CONTAMINENT 008210
LABORATORY NUMBER: 36589-2000-W

TCLP SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS TCLP

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dichlorobenzene	ND	0.050	mg/l	SW846 8270C
2,4-Dinitrotoluene	ND	0.050	mg/l	SW846 8270C
Hexachlorobenzene	ND	0.050	mg/l	SW846 8270C
Hexachlorobutadiene	ND	0.050	mg/l	SW846 8270C
Hexachloroethane	ND	0.050	mg/l	SW846 8270C
Nitrobenzene	ND	0.050	mg/l	SW846 8270C
Pentachlorophenol	ND	0.25	mg/l	SW846 8270C
Pyridine	ND	0.10	mg/l	SW846 8270C
2,4,5-Trichlorophenol	ND	0.050	mg/l	SW846 8270C
2,4,6-Trichlorophenol	ND	0.050	mg/l	SW846 8270C
Cresols (Total)	ND	0.050	mg/l	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(32 - 112)
Terphenyl-d14	69	(30 - 110)
2-Fluorophenol	62	(10 - 144)
2-Fluorobiphenyl	68	(13 - 110)
Phenol-d5	82	(10 - 113)
2,4,6-Tribromophenol	82	(21 - 122)

NOTE(S):
Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311(55 FR 26986)

Date Sampled: January 28, 2000 12:05
Date Sample Received: January 28, 2000 15:15
Date Sample Analyzed: February 8, 2000
Parameters analyzed by Quanterra Environmental, Pittsburgh, PA
Laboratory Number: D84W7101 C0B020173-001

REVIEWED BY: _____
William F. Kirk

RELIANCE LABORATORIES, INC.

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VOICE 304-754-7360
FAX 304-754-7475

Monday, February 28, 2000

DIVISION OF ENVIRONMENTAL PROTECTION

OFFICE OF WASTE MANAGEMENT
1304 Goose Run Road
Fairmont, WV 26554

Sample I.D: TRIP BLANK
Lab.Number: 36588-2000-W

PARAMETER	VALUE	UNITS	METHOD	MCL	MDL	DATE/TIME ANALYZED	ANALYST
TCLP		mg/l**	EPA 1311			2/16/00 9:24	B.Plemons
Benzene	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Carbon Tetrachloride	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Chlorobenzene	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
1,2-Dichloroethane	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Chloroform	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
1,1-Dichloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Methyl Ethyl Ketone	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Trichloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Tetrachloroethylene	ND	mg/l**	EPA 8260B		0.005	2/24/00 16:44	B.Plemons
Vinyl Chloride	ND	mg/l**	EPA 8260B		0.002	2/24/00 16:44	B.Plemons

Date Sampled:
Sample Submitted By: J.MOORE
Date Sample Received: 2000/01/28 15:15
ND = Not Detected
MDL = Minimum Detectable Limit
MCL = Maximum Contaminant Level

REVIEWED BY: _____

* TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd Edition
**mg/l in Leachate
Surrogate Recovery: 1,2-Dichloroethane-d4 106.8 %Recovery
Toluene-d8 87.6 %Recovery 4-Bromofluorobenzene 85.1 %Recovery

RELIANCE LABORATORIES INC

L-5

Client Sample ID: 008210C

GC/MS Semivolatiles

Lot-Sample #...: C0B020173-001 Work Order #...: D84W7101 Matrix.....: WATER
Date Sampled...: 01/28/00 Date Received..: 02/02/00 MS Run #.....: 0034073
Prep Date.....: 02/03/00 Analysis Date..: 02/08/00
Prep Batch #...: 0034243
Dilution Factor: 1 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dichlorobenzene	ND	0.050	mg/L
2,4-Dinitrotoluene	ND	0.050	mg/L
Hexachlorobenzene	ND	0.050	mg/L
Hexachlorobutadiene	ND	0.050	mg/L
Hexachloroethane	ND	0.050	mg/L
Nitrobenzene	ND	0.050	mg/L
Pentachlorophenol	ND	0.25	mg/L
Pyridine	ND	0.10	mg/L
2,4,5-Trichlorophenol	ND	0.050	mg/L
2,4,6-Trichlorophenol	ND	0.050	mg/L
Cresols (total)	ND	0.050	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	74	(32 - 112)
2-Fluorobiphenyl	69	(30 - 110)
Terphenyl-d14	62	(10 - 144)
2-Fluorophenol	68	(13 - 110)
Phenol-d5	82	(10 - 113)
2,4,6-Tribromophenol	82	(21 - 122)

1 - 1

CHAIN OF CUSTODY RECORD

* MUST BE COMPLETED BY CLIENT

CLIENT NAME*: WVDEP CME
ADDRESS*:
SHEET NO. ___ OF ___

CUSTOMER NO.: Co 302
PHONE NO.*: ( )
SAMPLER/S*: J. Moore
FAX NO.*: ( )

LAB NUMBER	DATE*	TIME*	COMP*	GRAB*	IDENTIFICATION*	SAMPLE MATRIX* AND TEMP (13°)	NO. OF CON-TAINERS	HNO3	H2SO4	HCL	NaOH	BACTI	NO PRES	OTHER	ANALYSIS REQUIRED *
36587-00 W	1/28	12:00		✓	A	W	1						✓		TCLP Met
36588-00 W	1/28	12:05		✓	B	W	1						✓		TCLP organic volatiles
36589-00 W	1/28	12:05		✓	C	W	1						✓		TCLP Semi volatiles

Secondary Containment 068210

THESE SAMPLES DO / DO NOT MEET EPA GUIDELINES FOR PROPER HOLDING TIMES
THESE SAMPLES DO / DO NOT MEET EPA GUIDELINES FOR PROPER PRESERVATIVES
THESE SAMPLES DO / DO NOT MEET EPA GUIDELINES FOR PROPER CONTAINERS
THESE SAMPLES ARE / ARE NOT FOR COMPLIANCE PURPOSES

WEATHER/TEMPERATURE:
REMARKS:

Relinquished by: *	Date/Time *	Received by: *
Print: Joyce Moore Sign: Joyce Moore	1/28/00 15:15	Print: Sign: B. Freeman

Relinquished by: *	Date/Time	Received by:
Print: Sign: B. Freeman	2/1/00 15:00	Print: UPS Sign:

Relinquished by: *	Date/Time	Received by:
Print: Sign:		Print: Sign:

	Date/Time	Received by:
Courier: Tracking #:		Print: Sign:

RELIANCE LABORATORIES, INC.
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BRIDGEPORT, WV 26330
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ONE EAGLE PLAZA, SUITE I
HEDGESVILLE, WV 25427
304-754-7360

EXTENT OF LIABILITY

Should Reliance Laboratories, Inc. be at fault and any dispute arise regarding analytical data generated by the laboratory the extent of liability to Reliance Laboratories will be a duplicate analysis of that sample (providing adequate sample remains)or a refund of the analytical fee. In no event will Reliance Laboratories, be liable for damages including but not limited to direct, indirect, or consequential damages arising from such dispute. Typical sample turn around for routine samples is 5 to 10 working days. This is not a guarantee that samples will be completed in this time frame, however. Non-routine samples may reqire additional time.

RECEIVED
BY CD DATE 2-1-00

6-7

L-7

WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION
Chain of Custody Record

Project No.	Project Name or Code
	008210

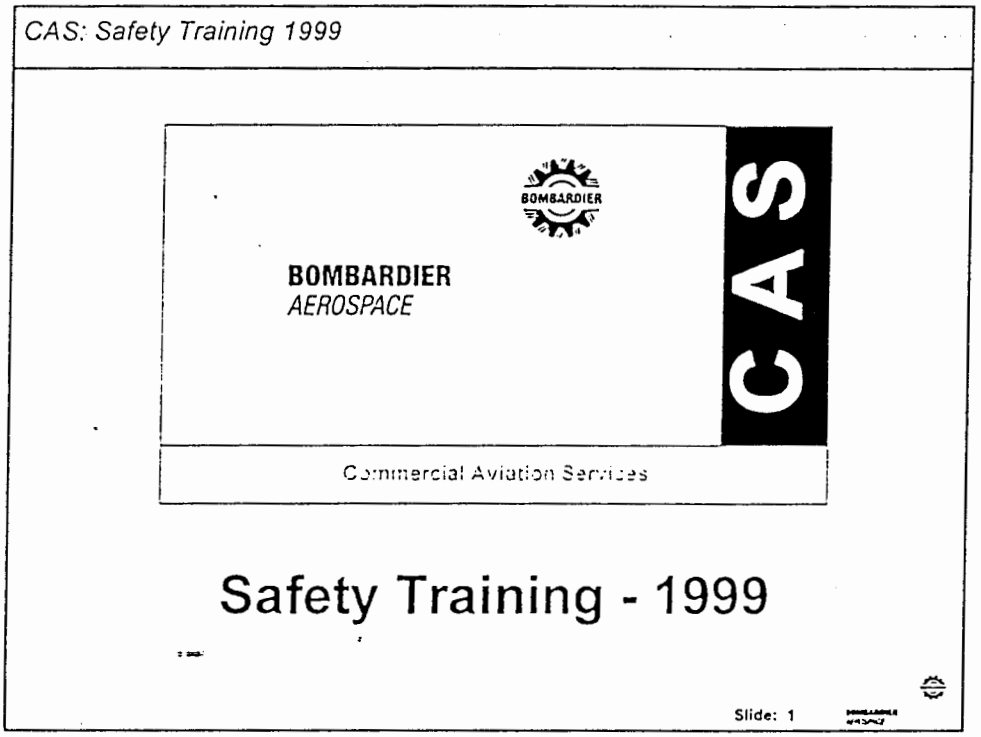
Samplers: (Signature) Jayne Moon

Sample Station No	Date	Time	Comp.	Grab	Station Location	No. of Containers	TCLP Metals	TCLP Organics Volatiles	TCLP Semi-Vol				Remarks
008210A	1/28/00	12:05		✓	Secondary Containment	1	✓						
008210B	1/28/00	12:05		✓	" "	1		✓					
008210C	1/28/00	12:05		✓	" "	1			—				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jayne Moon	1/28/00 15:15	D Freeman			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

White - Shipment Canary - Laboratory Pink - Sampler's Copy

Rev. 3/93



CAS: Safety Training 1999

Agenda

Shift Times 1st	Shift Times 2nd	Shift Times 3rd	Status	Topic	Time
0700	1500	2300	➔	Introduction & CAS Safety	0.5
0730	1530	2330		Bloodborne Pathogen	0.5
0800	1600	0000		Hazard Communication	1
0830	1630	0030		Hazardous Materials (Short)	0.5
0900	1700	0100		Hazardous Waste	1
0930	1730	0130		Fire Safety	0.5
1000	1800	0200		Lunch	
1030	1830	0230		Contingency Plan / Drainage System	1
1100	1900	0300		Scaffolding / Fall Protection	1
1130	1930	0330			0.5
1200	2000	0400		Building Security	0.5
1230	2030	0430		Test	1
1300	2100	0500			8
1330	2130	0530			
1400	2200	0600			
1430	2230	0630			
1500	2300	0700			
1530	2330	0730			

Slide: 2

Welcome & Introduction

Mike Kanaley
CAS: VP, Operations

Bill Pulling
CAS: Mgr., EHS

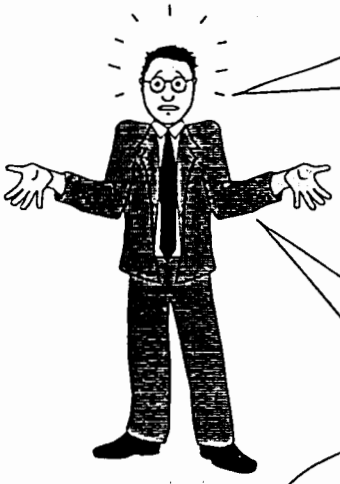
Troy Jonas
WVAC: General Manager

Summary

- 10 years of EHS experience with American Airlines
- Last Position: Mgr., Environmental - assigned to the American Eagle Group
  - 42 Maintenance & 145 Field Service Locations
- Certified Hazardous Materials Manager (CHMM)
- Registered Environmental Manager (REM)

Slide: 3

Welcome & Introduction



During your drive to work, did you think about dying or which body part (an eye, a finger, or a leg) could you lose today?

Why not?

Slide: 4

CAS: Safety Training 1999

Welcome & Introduction

For the year 1997:

6218 employees did not go home to the family or love ones. They were killed on the job

6.1 million employees were injured or had an occupational illnesses

Slide: 5

CAS: Safety Training 1999

Welcome & Introduction

Why not??

Because injuries and damages are ACCIDENTS

Cause of Accidents:

Unsafe Conditions.....15%

Unsafe Acts.....85%

Slide: 6

CAS: Safety Training 1999

Welcome & Introduction

Employees are the company's most valuable asset

Bombardier Aerospace is committed to providing employees a safe and healthful workplace

Federal and State laws provide a framework for us to work

- Bombardier Aerospace EHS Policies and procedures are kept in the EHS Manual
- Safety Manual Volume III Maintained in library, and command centers

Slide: 7

CAS: Safety Training 1999

Cardinal Safety Rules

The most basic company safety policy

EMPLOYER

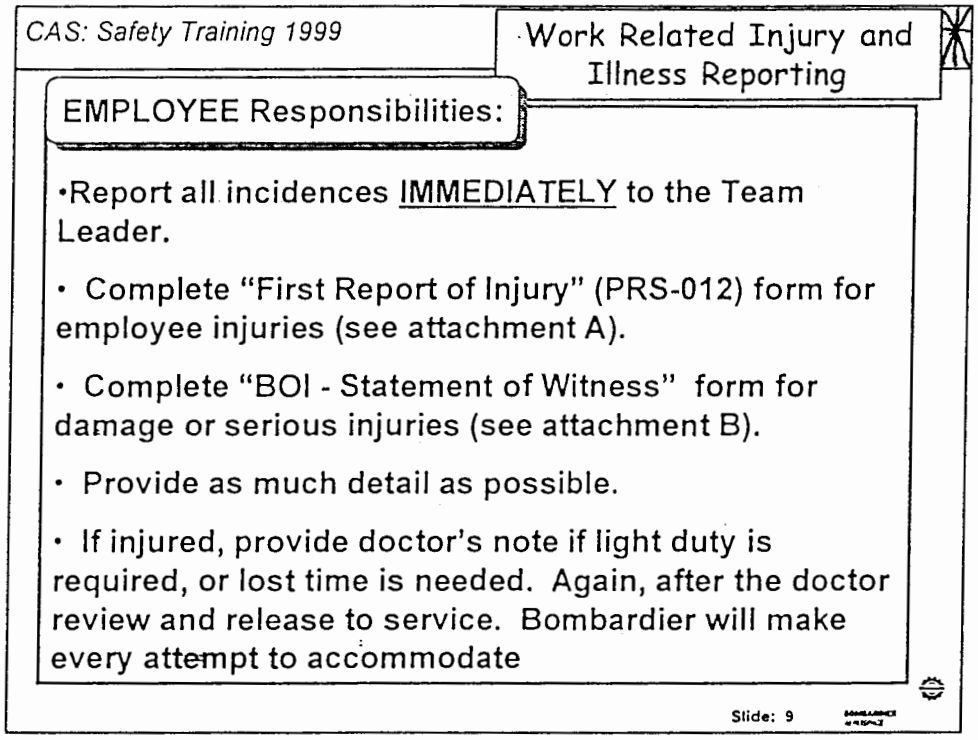
- The employer must provide a safety work environmental.

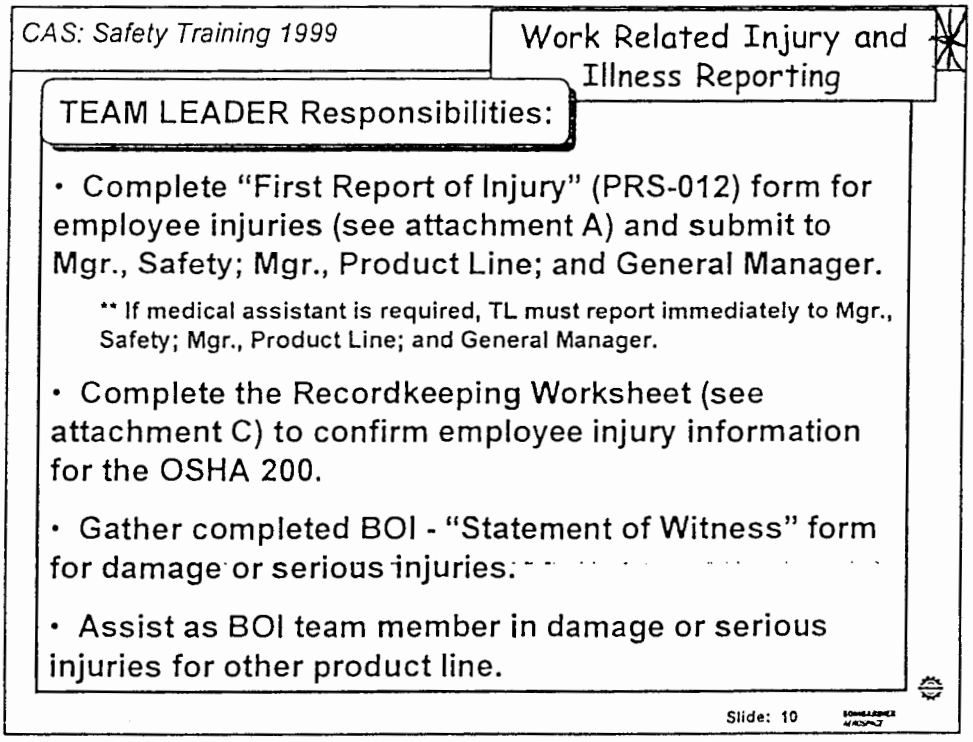
General Duty Clause

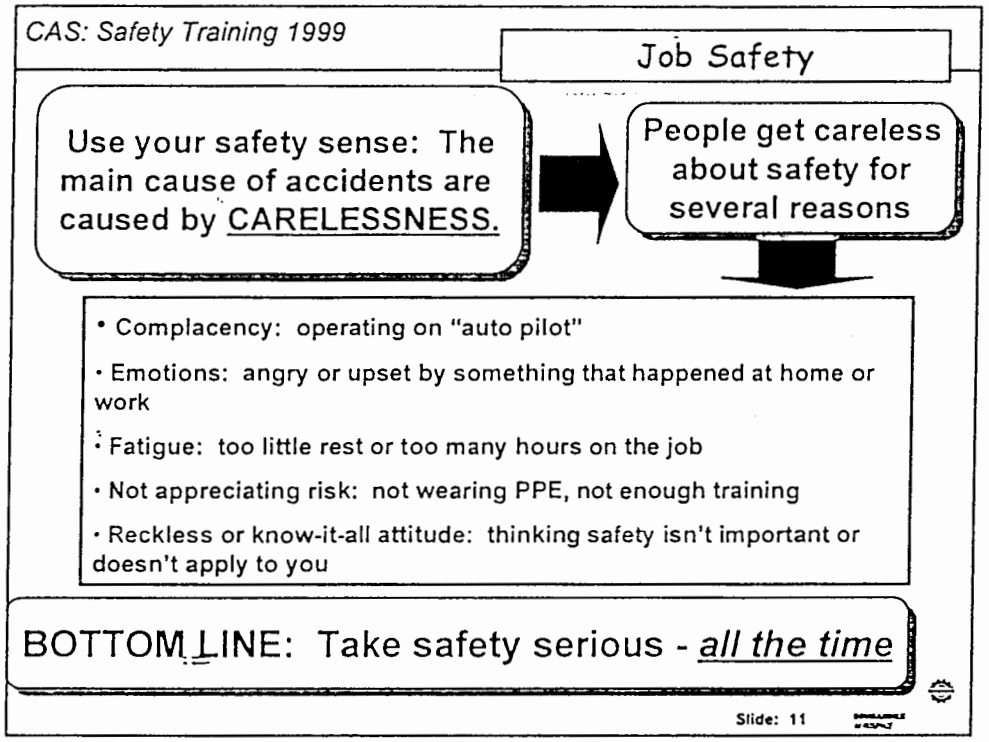
EMPLOYEE

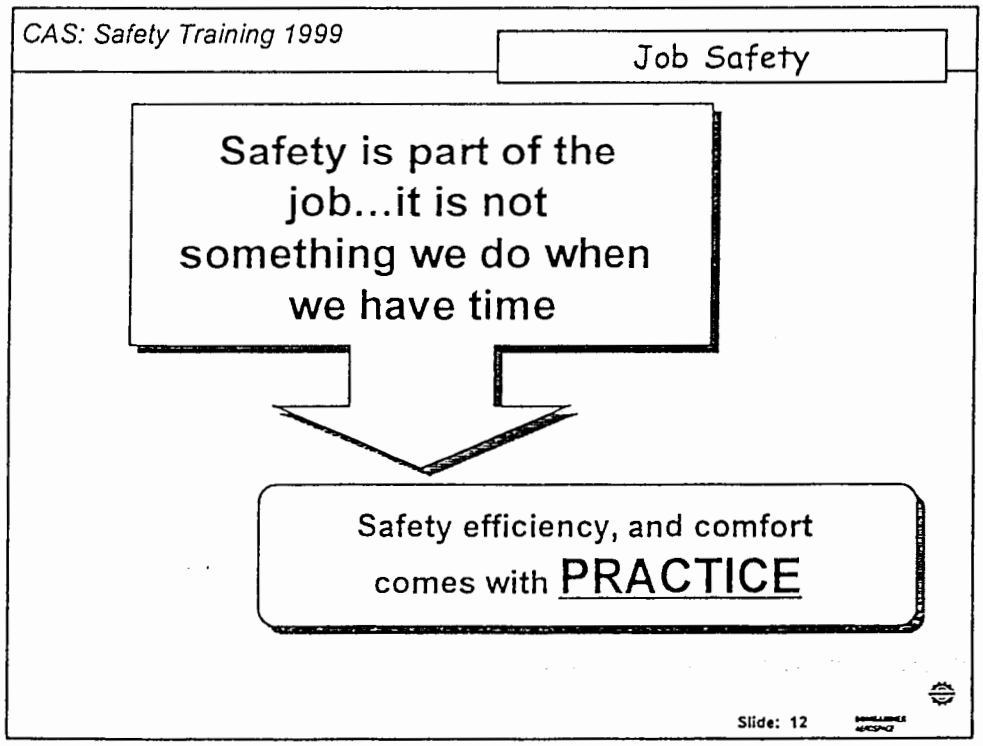
- The employee must observe these rules
- Failure to observe these rules will result in disciplinary actions, up to and including termination

Slide: 8


CAS: Safety Training 1999
Work Related Injury and Illness Reporting
EMPLOYEE Responsibilities:
•Report all incidences IMMEDIATELY to the Team Leader.
• Complete "First Report of Injury" (PRS-012) form for employee injuries (see attachment A).
• Complete "BOI - Statement of Witness" form for damage or serious injuries (see attachment B).
• Provide as much detail as possible.
• If injured, provide doctor's note if light duty is required, or lost time is needed. Again, after the doctor review and release to service. Bombardier will make every attempt to accommodate
Slide: 9


CAS: Safety Training 1999
Work Related Injury and Illness Reporting
TEAM LEADER Responsibilities:
• Complete "First Report of Injury" (PRS-012) form for employee injuries (see attachment A) and submit to Mgr., Safety; Mgr., Product Line; and General Manager.
** If medical assistant is required, TL must report immediately to Mgr., Safety; Mgr., Product Line; and General Manager.
• Complete the Recordkeeping Worksheet (see attachment C) to confirm employee injury information for the OSHA 200.
• Gather completed BOI - "Statement of Witness" form for damage or serious injuries.
• Assist as BOI team member in damage or serious injuries for other product line.
Slide: 10


CAS: Safety Training 1999
Job Safety
Use your safety sense: The main cause of accidents are caused by CARELESSNESS.
People get careless about safety for several reasons
• Complacency: operating on "auto pilot"
• Emotions: angry or upset by something that happened at home or work
• Fatigue: too little rest or too many hours on the job
• Not appreciating risk: not wearing PPE, not enough training
• Reckless or know-it-all attitude: thinking safety isn't important or doesn't apply to you
BOTTOM LINE: Take safety serious - all the time
Slide: 11


CAS: Safety Training 1999
Job Safety
Safety is part of the job...it is not something we do when we have time
Safety efficiency, and comfort comes with PRACTICE
Slide: 12

CAS: Safety Training 1999

Agenda

Shift Times 1st	2nd	3rd	Status	Topic	Time
0700	1500	2300		Introduction & CAS Safety	0.5
0730	1530	2330	➔	Bloodborne Pathogen	0.5
0800	1600	0000		Hazard Communication	1
0830	1630	0030		Hazardous Materials (Short)	0.5
0900	1700	0100		Hazardous Waste	1
0930	1730	0130		Fire Safety	0.5
1000	1800	0200		Lunch	
1030	1830	0230		Contingency Plan / Drainage System	1
1100	1900	0300		Scaffolding / Fall Protection	1
1130	1930	0330			0.5
1200	2000	0400		Building Security	0.5
1230	2030	0430		Test	1
1300	2100	0500			8
1330	2130	0530			
1400	2200	0600			
1430	2230	0630			
1500	2300	0700			
1530	2330	0730			

Slide: 13

CAS: Safety Training 1999

Bloodborne Pathogens

Bloodborne Pathogens (BBP) is a phrase that describe potentially infectious or disease carrying organisms possibly present in human bodily fluids. Bombardier employees may come in contact with BBPs at work in the following ways:

- Injured employee or customer (blood from wound)
- Ill employee or customer (blood in vomit, urine, or stool)
- Needle stick
- Human bites
- Administering CPR (Cardio Pulmonary Resuscitation)
- Aircraft part involved accidents

At Bombardier, employees must follow the procedure of...

"Universal Precautions": This means: Always assume that human bodily fluids contains a BBP and, always protect yourself with a protective barrier. (This includes gloves).

Slide: 14

CAS: Safety Training 1999

Bloodborne Pathogens

By following these procedures, an employee will have little chance of being "exposed" to a potential BBP.

To truly be "exposed", an employee would have to have a skin puncture, or an open wound in contact with the potential BBP, or get the potential BBP in contact with a mucous membrane (Eye, nose, or mouth). Simply getting blood on protective glove for example, would NOT be an "exposure".

WHAT DO YOU DO IF YOU THINK YOU'VE BEEN EXPOSED?

- Report the incident to your Team Leader before the end of your shift.
- Team leader will arrange for you to be seen by local medical facility as soon as possible.
- Be prepared to give an detail explanation of the event

Slide: 15

CAS: Safety Training 1999

Bloodborne Pathogen

How to Clean-up BBP Spill?

1.) Protect yourself with an appropriate barrier of gloves, face shield and clothing covering.

2.) Decontaminate the spill and any items in contact with the spill. Use a solution of 1 part bleach to 10 part water.

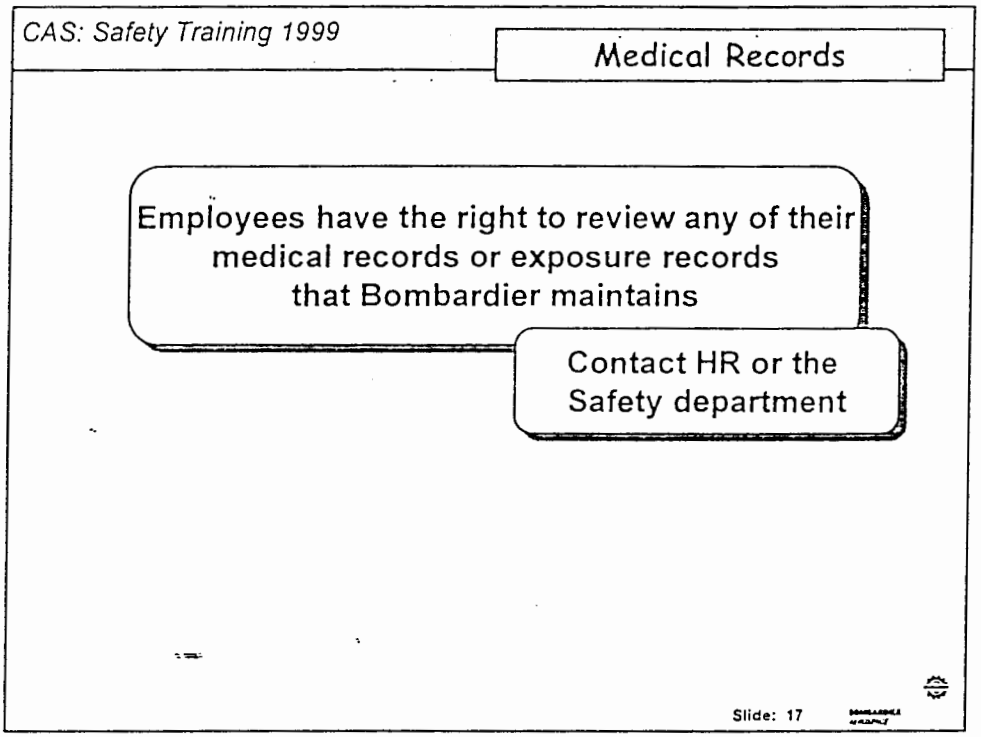
3.) Clean up the spill.

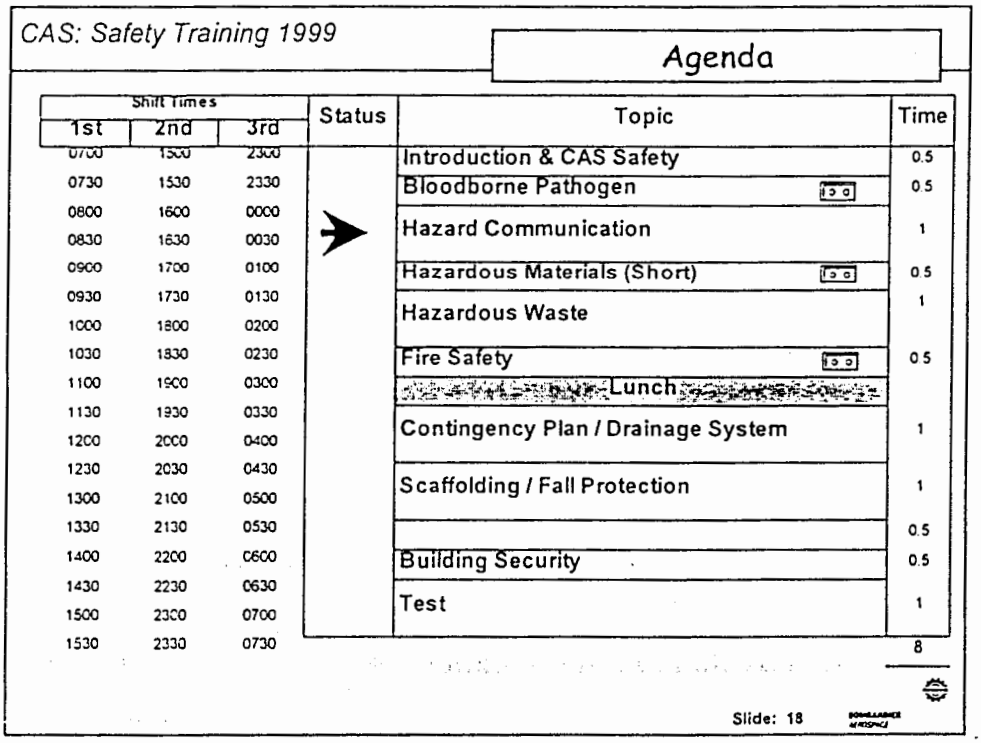
4.) Double bag all spill materials, related protection clothing and disposable tools used to clean up the spill.

5.) Turn over all waste to station Environmental Coordinator for proper disposal.

IMPORTANT: Do not dispose of BBP waste in regular trash.

Slide: 16


CAS: Safety Training 1999
Medical Records
Employees have the right to review any of their medical records or exposure records that Bombardier maintains
Contact HR or the Safety department
Slide: 17


CAS: Safety Training 1999
Agenda
Shift Times
1st 2nd 3rd
Status
Topic
Time
0700 1500 2300
0730 1530 2330
0800 1600 0000
0830 1630 0030
0900 1700 0100
0930 1730 0130
1000 1800 0200
1030 1830 0230
1100 1900 0300
1130 1930 0330
1200 2000 0400
1230 2030 0430
1300 2100 0500
1330 2130 0530
1400 2200 0600
1430 2230 0630
1500 2300 0700
1530 2330 0730
Introduction & CAS Safety 0.5
Bloodborne Pathogen 0.5
Hazard Communication 1
Hazardous Materials (Short) 0.5
Hazardous Waste 1
Fire Safety 0.5
Lunch
Contingency Plan / Drainage System 1
Scaffolding / Fall Protection 1
0.5
Building Security 0.5
Test 1
8
Slide: 18

CAS: Safety Training 1999

Hazard Communication

29 CFR 1910.1200
Hazard Communication (HazCom) Standard
as so know as: "Employee Right to know"

Required

- Determine the hazard of the chemicals
- Materials Safety Data Sheet (MSDSs)
- Labels and Labeling
- A written Hazard Communication Program (SP1214)

Slide: 19

CAS: Safety Training 1999

Hazard Communication

Determine the Hazard of Chemical

Chemicals are broken into two groups:

Physical Hazards

Exhibited by certain chemical due to their physical properties. These chemical fall in the following classes:

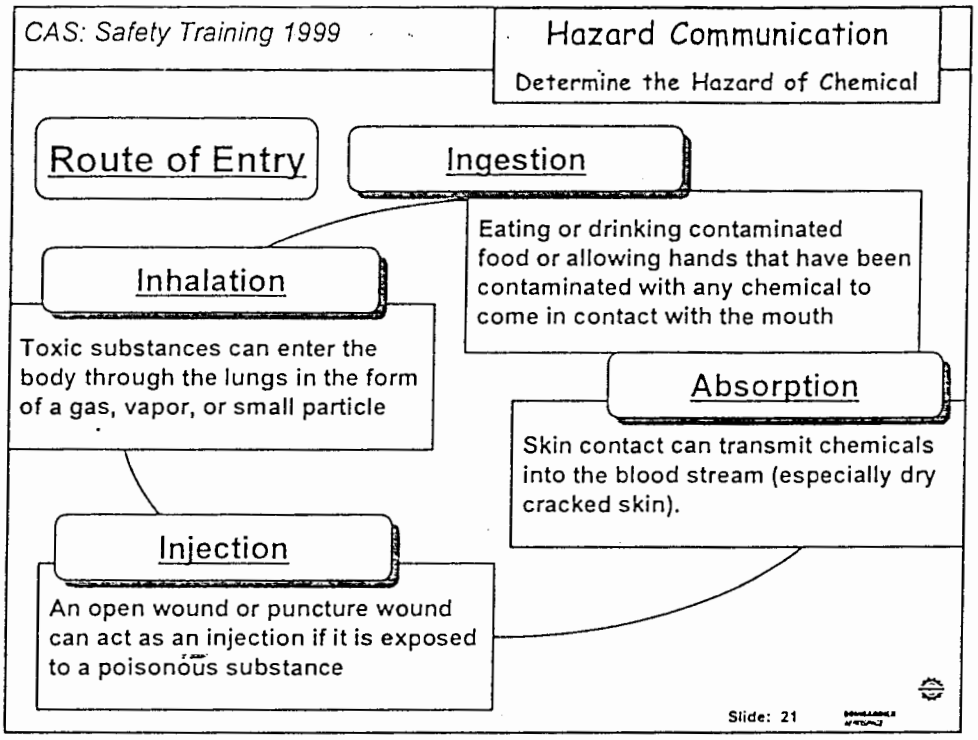
- Flammable Liquids or solid
- Explosives
- Oxidizers
- Unstable materials
- Combustible liquids
- Organic peroxide
- Pyrophoric materials
- Water reactive materials

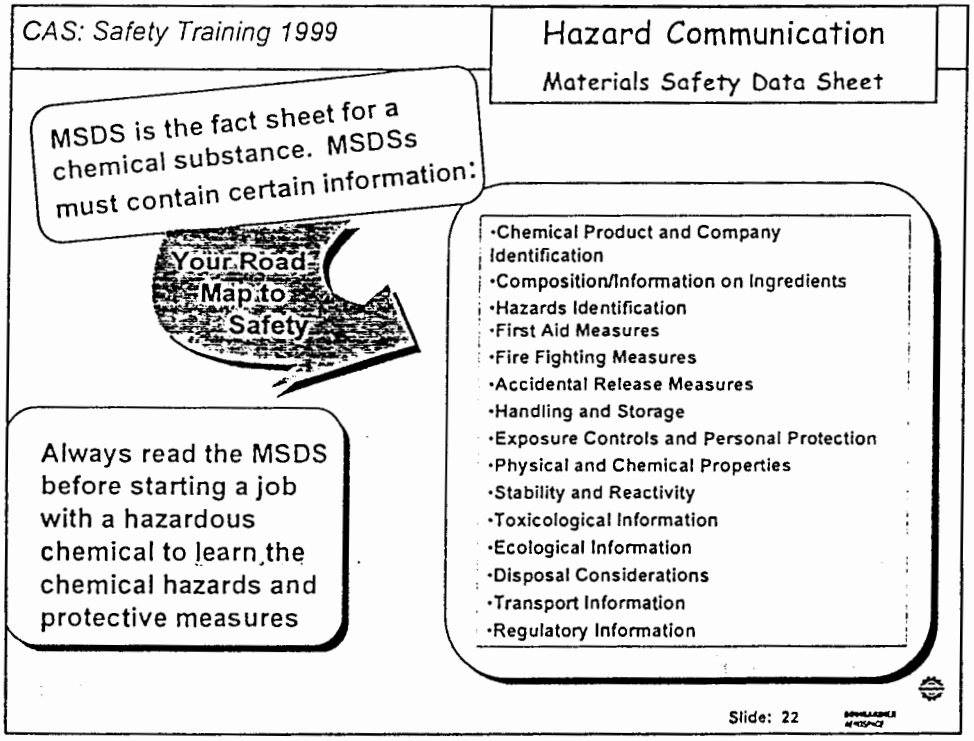
Health Hazards

ACUTE Health Effect: usually occurs rapidly, following a brief exposure

Chronic Health effect: is long, continuous and follows repeated long-term exposure

Slide: 20


CAS: Safety Training 1999
Hazard Communication
Determine the Hazard of Chemical
Route of Entry
Ingestion
Eating or drinking contaminated food or allowing hands that have been contaminated with any chemical to come in contact with the mouth
Inhalation
Toxic substances can enter the body through the lungs in the form of a gas, vapor, or small particle
Absorption
Skin contact can transmit chemicals into the blood stream (especially dry cracked skin).
Injection
An open wound or puncture wound can act as an injection if it is exposed to a poisonous substance
Slide: 21


CAS: Safety Training 1999
Hazard Communication
Materials Safety Data Sheet
MSDS is the fact sheet for a chemical substance. MSDSs must contain certain information:
Your Road Map to Safety
Always read the MSDS before starting a job with a hazardous chemical to learn the chemical hazards and protective measures
•Chemical Product and Company Identification
•Composition/Information on Ingredients
•Hazards Identification
•First Aid Measures
•Fire Fighting Measures
•Accidental Release Measures
•Handling and Storage
•Exposure Controls and Personal Protection
•Physical and Chemical Properties
•Stability and Reactivity
•Toxicological Information
•Ecological Information
•Disposal Considerations
•Transport Information
•Regulatory Information
Slide: 22

CAS: Safety Training 1999

Hazard Communication
Materials Safety Data Sheet

MSDS Locations:

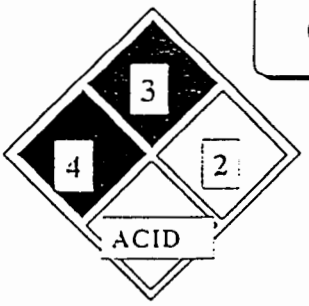
- Library (in file cabinet)
- Hallway by the locker room (in binders)

Slide: 23

CAS: Safety Training 1999

Hazard Communication
Labeling

Chemical Labeling



Fire Hazard Red

Reactivity Hazard Yellow

Health Hazard Blue

Special Hazard

Numbers show the "Degree of Hazard"

0 = Minimum Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

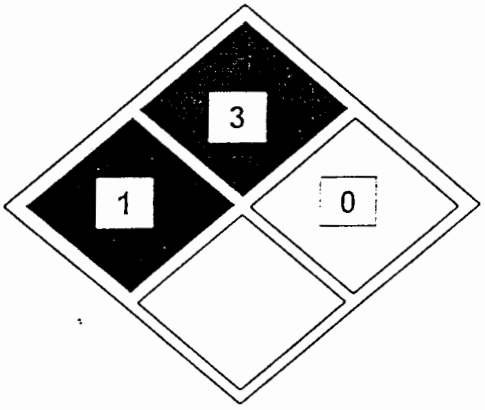
OX = Oxidizer
Acid = Acid
ALK = Alkali
COR = Corrosive
W = Use no water
= Radioactive

NFPA Label System
(National Fire Protectors Assoc.)

Slide: 24

CAS: Safety Training 1999

Hazard Communication
Labeling



Trade Name

MSDS Number

Target Organs

Slide: 25

CAS: Safety Training 1999

Hazard Communication
Labeling

All chemical containers at the Bombardier facility Must Be Labeled

All labels are important!!!!!!
Always read the label before you move, handle, or open a chemical container

If a chemical is taken out of its original container and put into anther or a smaller container, the hazard information must be transferred to this new container

Slide: 26

CAS: Safety Training 1999

Hazard Communication
Materials Safety Data Sheet

MSDS Review:
(See Attachment D: Glossary)
(See Attachment E: Sample MSDS)

What is the corrosive? _____
Is it reactive? Yes or No and with _____
Is it Flammable? Yes or No _____
What is the LEL? _____
What is the UEL? _____
Is it Toxic? Yes or No
Is it radioactive? Yes or No
What PPE is needed?
What is the First Aid?

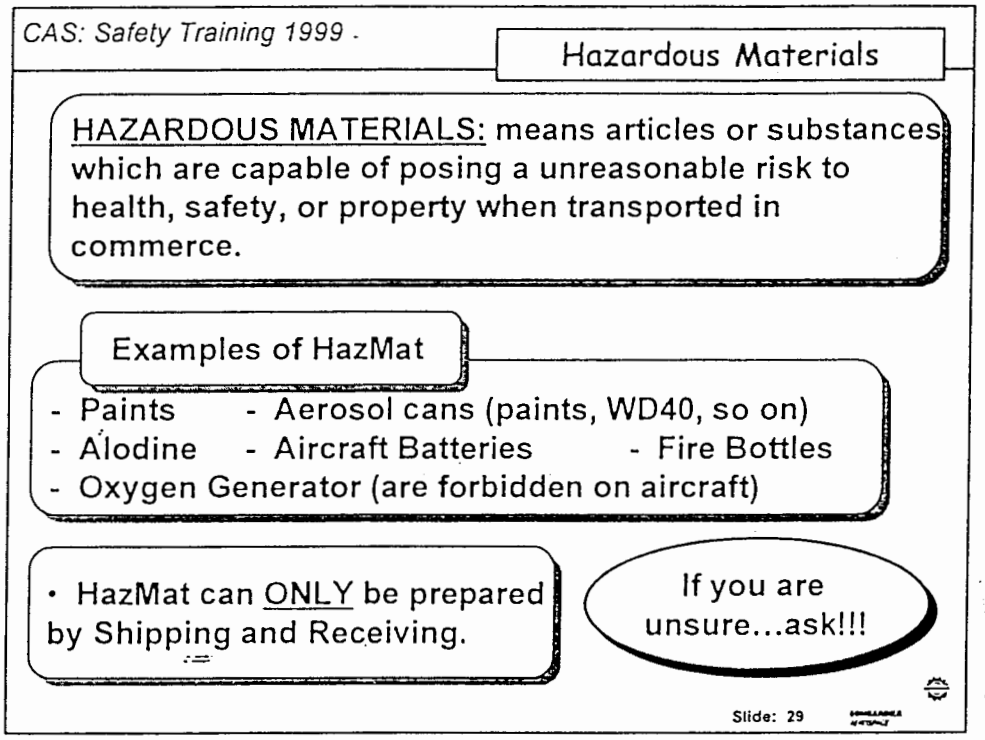
Slide: 27

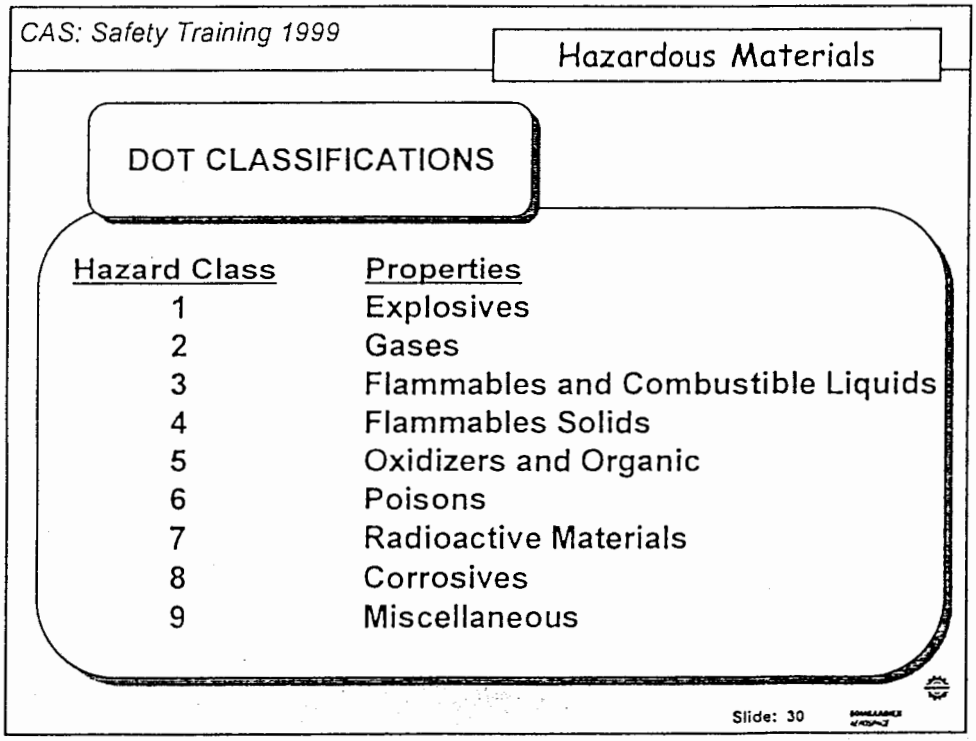
CAS: Safety Training 1999

Agenda

Shift Times 1st	Shift Times 2nd	Shift Times 3rd	Status	Topic	Time
0700	1500	2300		Introduction & CAS Safety	0.5
0730	1530	2330		Bloodborne Pathogen	0.5
0800	1600	0000		Hazard Communication	1
0830	1630	0030			
0900	1700	0100	➤	Hazardous Materials (Short)	0.5
0930	1730	0130		Hazardous Waste	1
1000	1800	0200			
1030	1830	0230		Fire Safety	0.5
1100	1900	0300		Lunch	
1130	1930	0330		Contingency Plan / Drainage System	1
1200	2000	0400			
1230	2030	0430		Scaffolding / Fall Protection	1
1300	2100	0500			
1330	2130	0530			0.5
1400	2200	0600		Building Security	0.5
1430	2230	0630		Test	1
1500	2300	0700			
1530	2330	0730			8

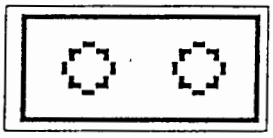
Slide: 28


CAS: Safety Training 1999 -
Hazardous Materials
HAZARDOUS MATERIALS: means articles or substances which are capable of posing a unreasonable risk to health, safety, or property when transported in commerce.
Examples of HazMat
- Paints - Aerosol cans (paints, WD40, so on)
- Alodine - Aircraft Batteries - Fire Bottles
- Oxygen Generator (are forbidden on aircraft)
• HazMat can ONLY be prepared by Shipping and Receiving.
If you are unsure...ask!!!
Slide: 29


CAS: Safety Training 1999
Hazardous Materials
DOT CLASSIFICATIONS
Hazard Class Properties
1 Explosives
2 Gases
3 Flammables and Combustible Liquids
4 Flammables Solids
5 Oxidizers and Organic
6 Poisons
7 Radioactive Materials
8 Corrosives
9 Miscellaneous
Slide: 30

CAS: Safety Training 1999

Hazardous Materials



HazMat Tape

Slide: 31

CAS: Safety Training 1999

Agenda

Shift Times 1st	Shift Times 2nd	Shift Times 3rd	Status	Topic	Time
0700	1500	2300		Introduction & CAS Safety	0.5
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1000	1800	0200		Lunch	
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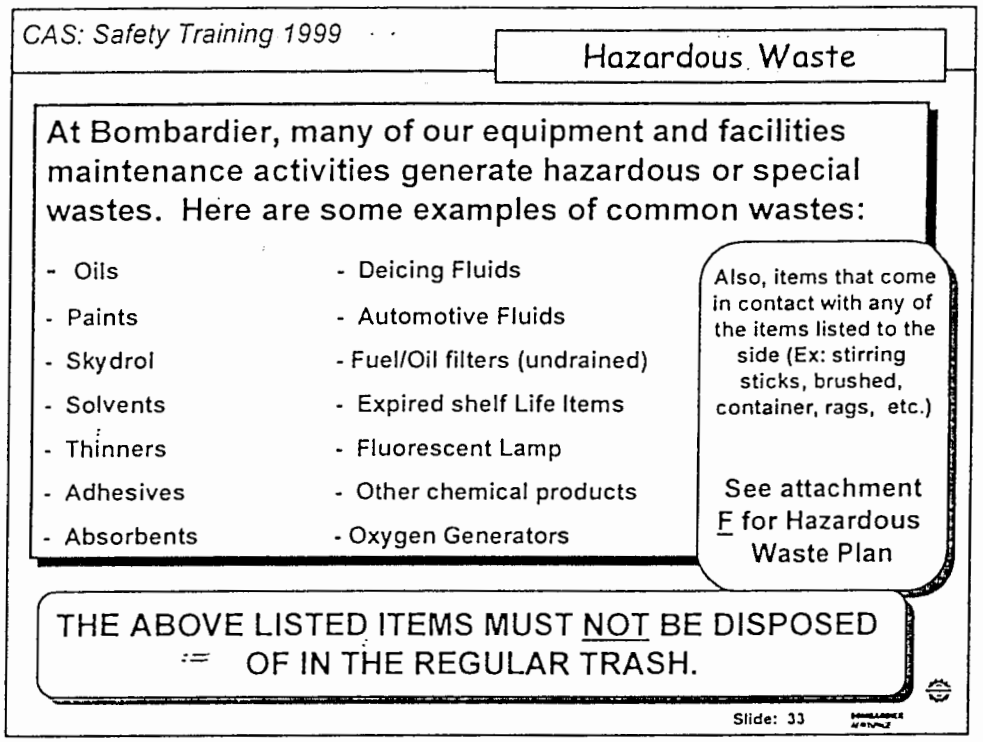
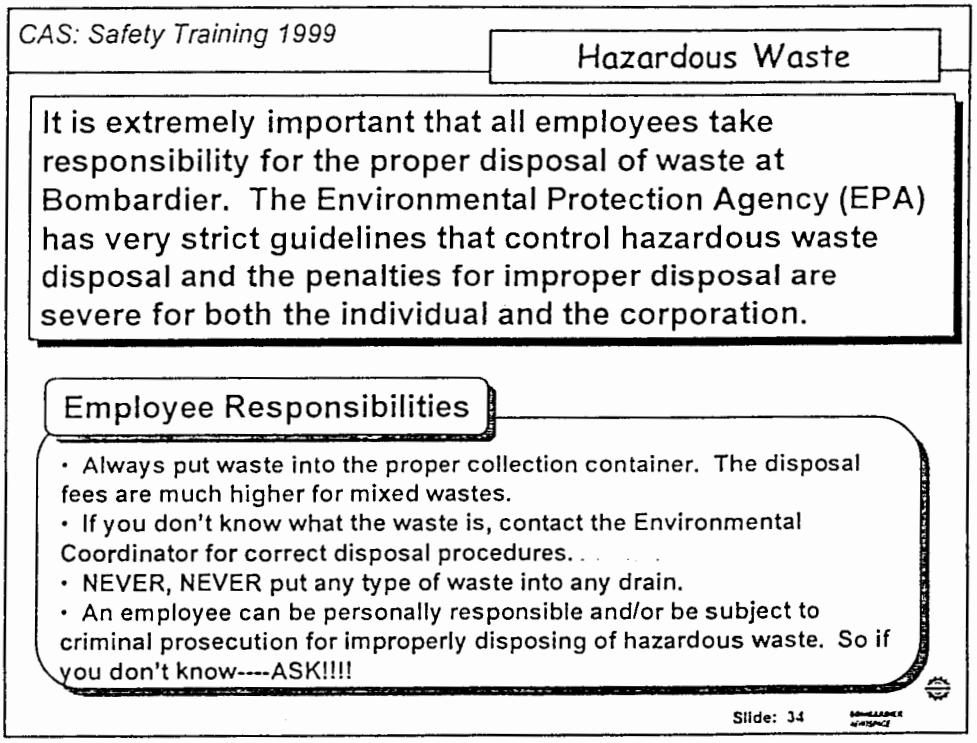
1130	1930	0330			0.5
1200	2000	0400		Building Security	0.5
1230	2030	0430		Test	1
1300	2100	0500			8
1330	2130	0530			
1400	2200	0600			
1430	2230	0630			
1500	2300	0700			
1530	2330	0730			

Slide: 32


CAS: Safety Training 1999
Hazardous Waste
At Bombardier, many of our equipment and facilities maintenance activities generate hazardous or special wastes. Here are some examples of common wastes:
- Oils
- Paints
- Skydrol
- Solvents
- Thinners
- Adhesives
- Absorbents
- Deicing Fluids
- Automotive Fluids
- Fuel/Oil filters (undrained)
- Expired shelf Life Items
- Fluorescent Lamp
- Other chemical products
- Oxygen Generators
Also, items that come in contact with any of the items listed to the side (Ex: stirring sticks, brushed, container, rags, etc.)
See attachment F for Hazardous Waste Plan
THE ABOVE LISTED ITEMS MUST NOT BE DISPOSED OF IN THE REGULAR TRASH.
Slide: 33


CAS: Safety Training 1999
Hazardous Waste
It is extremely important that all employees take responsibility for the proper disposal of waste at Bombardier. The Environmental Protection Agency (EPA) has very strict guidelines that control hazardous waste disposal and the penalties for improper disposal are severe for both the individual and the corporation.
Employee Responsibilities
• Always put waste into the proper collection container. The disposal fees are much higher for mixed wastes.
• If you don't know what the waste is, contact the Environmental Coordinator for correct disposal procedures.
• NEVER, NEVER put any type of waste into any drain.
• An employee can be personally responsible and/or be subject to criminal prosecution for improperly disposing of hazardous waste. So if you don't know----ASK!!!!
Slide: 34

CAS: Safety Training 1999

Hazardous Waste

Drum Label

Hazardous Waste

(1)

Drum ID #: Month Date Year _ Sequential

Start Date: (2) End Date: (3)

DATE DRUM ENTERED THE ACCUMULATION STORAGE AREA

(4)

Common Waste Number: _____

(5)

Common Name: _____

1.) Drum ID # - Is the number used to tracking the drum within Bombardier. (i.e.: 060599-01)

2.) Start Date - This is the date the drum was set-up and ready to receive waste.

3.) End Date - This is the date that the drum was full, seal, and taken to the accumulation storage area.

4.) Common Waste Number - This information is provided from the Waste Management Plan (column B) entitled, "Waste Stream Name." (i.e.: 102)

5.) Common Name - This information is provided from the Waste Management Plan (column A) entitled, "Waste Stream Name." (i.e.: Waste Oil)

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CAS: Safety Training 1999

Agenda

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1030	1830	0230	→	Fire Safety	0.5
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1230	2030	0430		Scaffolding / Fall Protection	1
1300	2100	0500			
1330	2130	0530			0.5
1400	2200	0600		Building Security	0.5
1430	2230	0630		Test	1
1500	2300	0700			
1530	2330	0730			8

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CAS: Safety Training 1999

Fire Safety

What is Fire?

Fire is a chemical reaction that involves three elements

Fuel

Any combustible material (solid, liquid or gas). Most solids and liquids become a vapor or gas they will burn.

Oxygen

An atmosphere with at least 16% oxygen is needed for ignition.

Source of Ignition

A flame, spark or general increase in the temperature of the fuel and oxygen that causes the mixture to ignite

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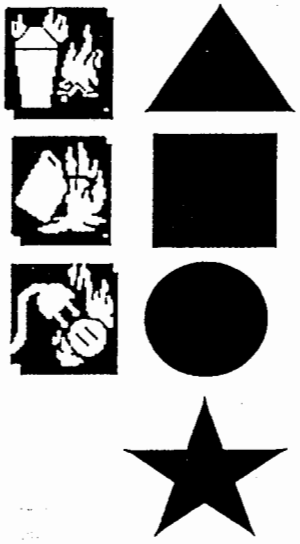
CAS: Safety Training 1999

Fire Safety

Fire Classification



Class A: Wood, paper, rubber, cloths, trash having burning embers or other ordinary combustible or fibrous material

Class B: Flammable liquids, such as gasoline, oil paints, grease, kerosene and solvents

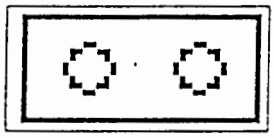
Class C: Electrical equipment that is energized, such as appliances, switches, panel boxes, and power tools

Class D: Combustible metals, such as magnesium, titanium, potassium and sodium, that burn at high temperatures and give off enough oxygen to ignite.

Slide: 38

CAS: Safety Training 1999

Fire Safety



Fire Tape

Slide: 39

CAS: Safety Training 1999

Agenda

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1230	2030	0430		Test	1
1300	2100	0500			8
1330	2130	0530			
1400	2200	0600			
1430	2230	0630			
1500	2300	0700			
1530	2330	0730			

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Contingency Plan/Drainage System

Spill Response

The following show several situations that could expose employees to chemical spills:
- Fuel Spills
- Equipment fluid leaks
- Storing chemicals in the facility
- Known or unknown chemical substances leaking in aircraft compartment

You, potentially, could encounter any one of these spills. It's important you be prepared to act to protect your personal safety and the safety of the environment.

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Contingency Plan/Drainage System

Where are the spill kits at you stations???

Make sure you know BEFORE a SPILL happens

Unknown Spilled Materials

- Protect Yourself: MOVE AWAY IMMEDIATELY, do not come with the material or attempt to clean up the spill
- Contact Your Team Leader and Mgr., Safety immediately for instructions.

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Contingency Plan/Drainage System

Known Spilled Materials

- Take safe steps to reduce the spread of the spill. This is especially important if the materials has the potential to enter a drain or run into the surrounding soil. Place absorbent materials (pads, kitty litter, booms) in the path of the spill.
- Contact your Team Leader and/or Mgr., Safety if the spilled product has entered drains to run-into soil.
- Wear adequate protective equipment as required and clean up the spill with absorbent materials. If drains or soil have been contaminated, wait for direction from the Team Leader and/or Mgr., Safety.
- Be certain that all waste generated in the spill clean-up is turned over to the Environmental Coordinator for proper disposal. In most cases, materials used to clean up hazardous chemicals are considered to hazardous waste.

Slide: 43

Contingency Plan/Drainage System

If you do not feel you can respond safety to any spill situation... DON'T. Move away and contact the Team Leader and/or Mgr., Safety

What is your role as an employee?

All of us are responsible for the activities at our station. All employees shall challenge or courteously question any strangers or unescorted visitors on the premises. If environmental contamination occurs on our property, ever if Bombardier did not do the polluting, the corporation may be held responsible

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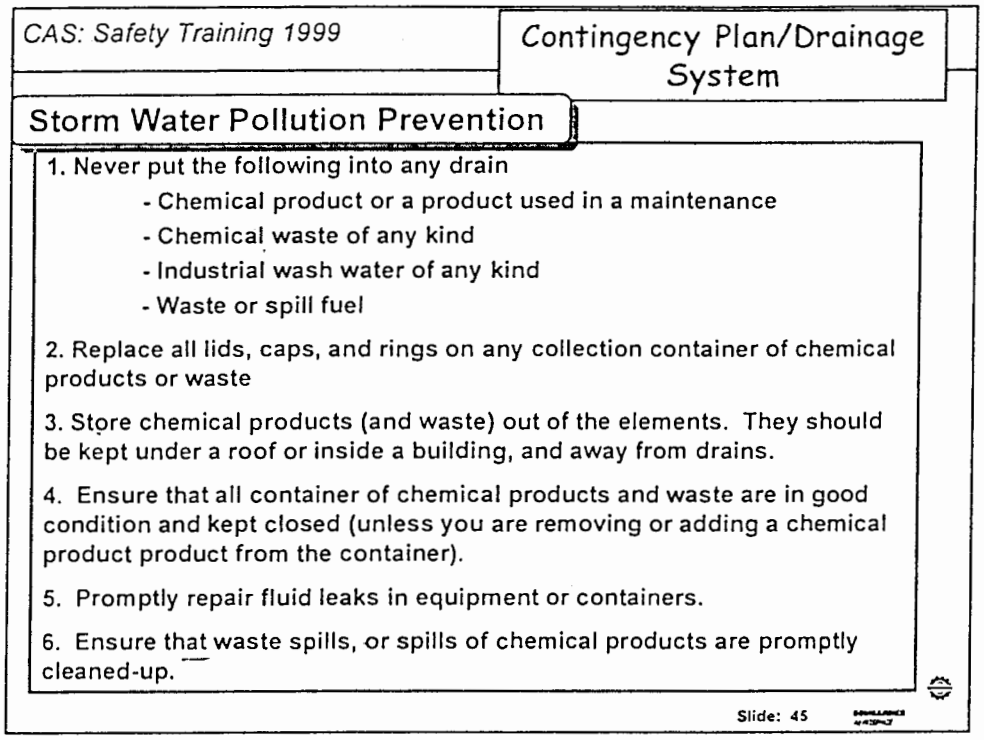
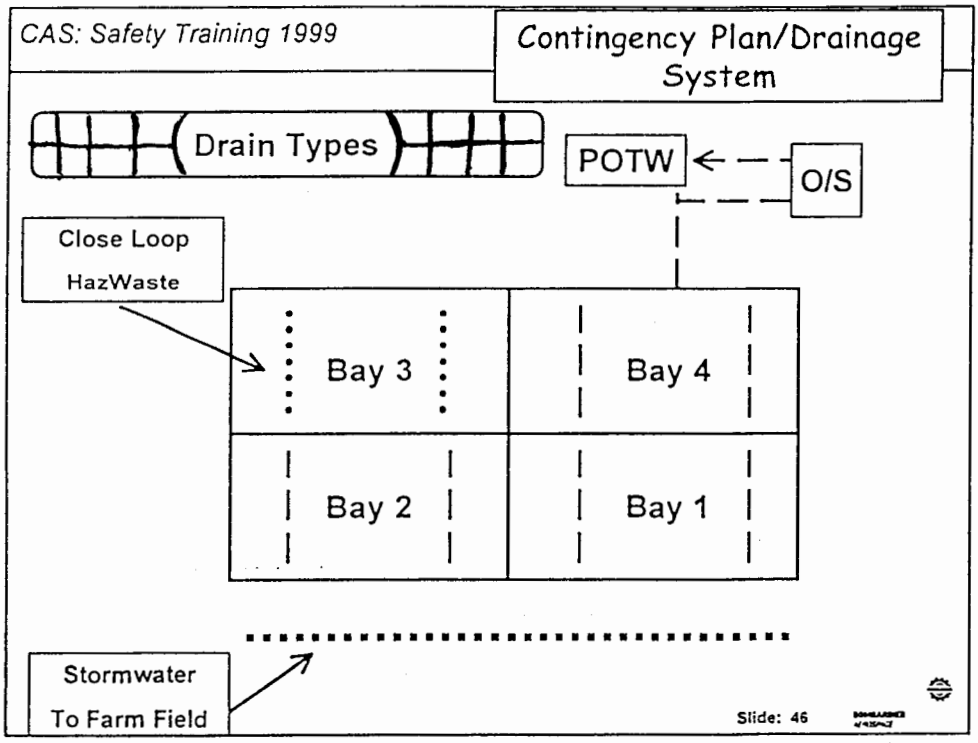

CAS: Safety Training 1999
Contingency Plan/Drainage System
Storm Water Pollution Prevention
1. Never put the following into any drain
- Chemical product or a product used in a maintenance
- Chemical waste of any kind
- Industrial wash water of any kind
- Waste or spill fuel
2. Replace all lids, caps, and rings on any collection container of chemical products or waste
3. Store chemical products (and waste) out of the elements. They should be kept under a roof or inside a building, and away from drains.
4. Ensure that all container of chemical products and waste are in good condition and kept closed (unless you are removing or adding a chemical product product from the container).
5. Promptly repair fluid leaks in equipment or containers.
6. Ensure that waste spills, or spills of chemical products are promptly cleaned-up.
Slide: 45


CAS: Safety Training 1999
Contingency Plan/Drainage System
Drain Types
POTW
O/S
Close Loop
HazWaste
Bay 3
Bay 4
Bay 2
Bay 1
Stormwater
To Farm Field
Slide: 46

CAS: Safety Training 1999

Agenda

Shift Times 1st	2nd	3rd	Status	Topic	Time
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1130	1930	0330			0.5
1200	2000	0400		Building Security	0.5
1230	2030	0430		Test	1
1300	2100	0500			8
1330	2130	0530			
1400	2200	0600			
1430	2230	0630			
1500	2300	0700			
1530	2330	0730			

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CAS: Safety Training 1999

Scaffolding / Fall Protection

FREE FALL DISTANCE

The objective is to limit the free fall distance because a mass will accelerate at 32 feet per second. This exponentially increases the energy to be absorbed during fall arrest and shock absorption.

How Long Does It Take To Fall?

TIME(second)	HEIGHT(feet)
0.5	4
1	16
1.5	36
2	64
2.5	100
3	144
4	256
6	576
10	1600

Slide: 48

Scaffolding / Fall Protection

PHYSICS OF A FALL				
Elapsed Time	Distance Traveled	Velocity Ft. per sec.	Speed MPH	Force At Impact
0.00	0	0	0	0
0.25	1 ft	8	5.5	400 lbs.
0.50	4 ft	16	11	1600 lbs.
0.61	6 ft	20	14	2400 lbs.
0.75	9 ft	24	16	3600 lbs.
1.00	16 ft	32	22	6400 lbs.
1.25	25 ft	40	27	10000 lbs.
1.50	36 ft	48	33	14000 lbs.
1.75	49 ft	56	38	19600 lbs.

*NOTE: Calculations based upon a 130-pound worker carrying 20 pounds of tools.

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Scaffolding / Fall Protection

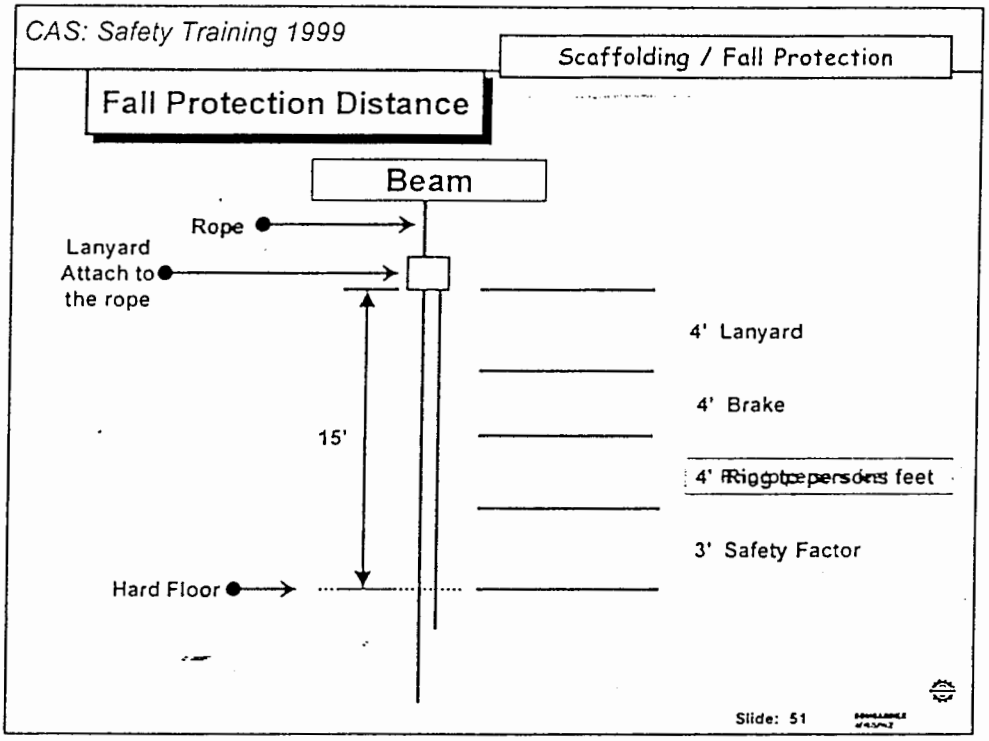
Method of Fall Protection

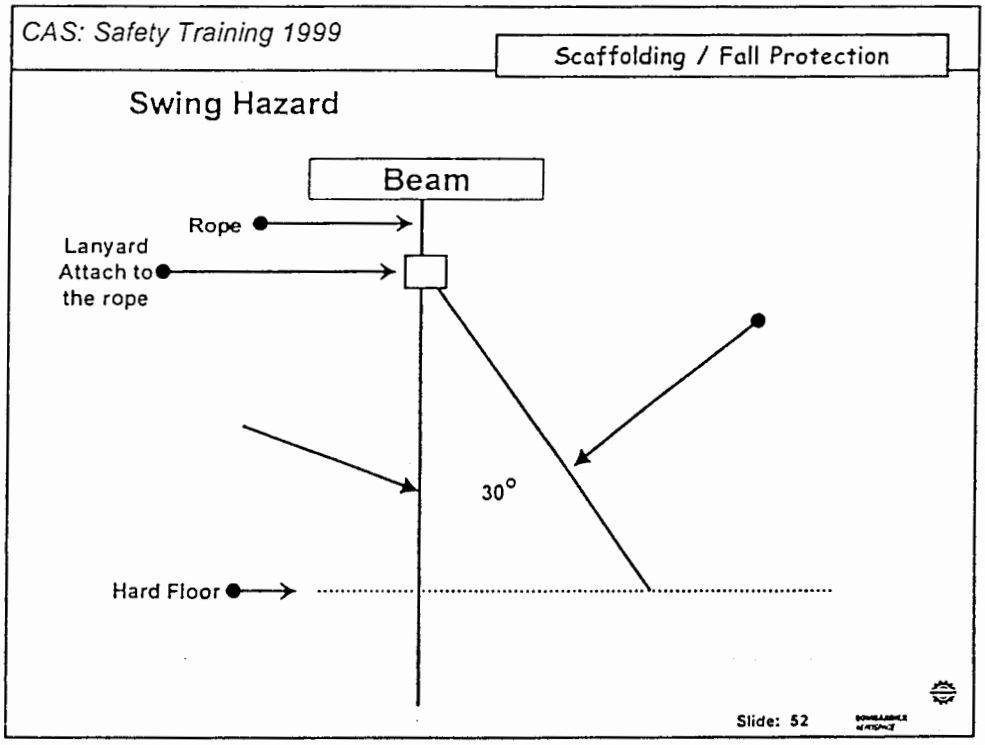
1.) Rope

2.) Scissors Lift / Boom Lift

3.) Staging

Slide: 50


CAS: Safety Training 1999
Scaffolding / Fall Protection
Fall Protection Distance
Beam
Rope
Lanyard
Attach to
the rope
15'
4' Lanyard
4' Brake
4' Rigg to person's feet
3' Safety Factor
Hard Floor
Slide: 51


CAS: Safety Training 1999
Scaffolding / Fall Protection
Swing Hazard
Beam
Rope
Lanyard
Attach to
the rope
30°
Hard Floor
Slide: 52

BOMBARDIER
AEROSPACE

Attachment

REVISION: Original
DATE: 9/20/99

AUTHORIZATION: _____

Bill Pulling, Manager Environmental, Health, & Safety

DOCUMENT CONTROL: This document is the responsibility of the Corporate Environmental, Health, & Safety department, Bombardier Aerospace (dba West Virginia Air Center). Address all requests for modification or clarication to the Environmental, Health, & Safety.

A	First Report of Injury
B	Statement of Witness
C	Recordkeeping Worksheet
D	Glossary
E	MSDS
F	Hazardous Waste Plan
G	
H	
Z	Answer Sheet

Attachment: A
M-28

WVAC
West Virginia Air Center

West Virginia Aerospace, Inc.
dba West Virginia Air Center
P. O. Box 906
Bridgeport, WV 26330

FIRST REPORT OF INJURY

COMPLETE IN FULL - NO EXCEPTIONS

Name and Address of Injured Employee: _____

_____

_____

Employee's Phone Number: _____ SS#: _____ Date of Birth: _____

Hire Date: _____ Age at time of Injury: _____

Marital Status: _____ Sex: ( ) M ( ) F

Employee's Position: _____ Department: _____

Date of Injury: _____ Place of Accident: _____

Time of Injury: _____ Time Workday Began on Day of Injury: _____

First Day Employer Aware of Injury: _____

Describe the Injury (Indicate the part of the body affected, and what the employee was doing at the time of the injury): _____

_____

_____

_____

Was Employee Treated by Physician? ( ) Yes ( ) No Name and Address of Treating Practitioner:

Was Employee Admitted to Hospital? ( ) Yes ( ) No _____

Was Time Lost as a Result of the Accident? ( ) Yes ( ) No _____

Did Employee Return to Work Same Day as Accident? _____
( ) Yes ( ) No

If No, Date Employee Returned to Work (If Available): _____

Preparer of This Report: _____ Position: _____

_____
Signature of Supervisor

PRS-012 2/02/95

M-29

STATEMENT OF WITNESS

Attachment: B

BOMBARDIER
AEROSPACE

INCIDENT:	
Subject :	
Location:	Bay:
Aircraft Tail Number:	Aircraft Type:	Aircraft Owner:
Date of the Incident:	Time of the Incident:	Job and ops
WEATHER	☐ Incident occurred inside
Weather/Ramp Conditions.	
DESCRIPTION OF INCIDENT:	If more space is need, please use the back of this form. If a diagram is help in explain the event, please provide one.

By signing this statement, I certify that the above information is true and accurate to best of your knowledge.

Name (Print):	Signature:	Employee Number:	Time/Date:

M-30

Memo

BOMBARDIER
AEROSPACE

Attachment: C

Date: . 8/21/99

To: _____

C.C.: T. Jonas, _____

From: B. Pulling

Subject: **Recordkeeping Worksheet:**

Name:	Date of Injury	Injury:

After reviewing the First Report of Injury on the above named employee, This information is confirm whether or not this injury is an OSHA recordable case. To assist in making this determination, this worksheet was developed.

Below are all the key questions used to assist in making the determination. Answer these questions and then follow the instructions provided.

MEDICAL TREATMENT	
Did the employee lose consciousness as a result of the injury?	Circle the best answer: ☐ Yes ☐ No
Did the employee receive Medical Treatment as a result of the injury? (Identified by WC123☐ (See MEDICAL TREATMENT VS FIRST AID Section on the last page)	Circle the best answer: ☐ Yes ☐ No If yes, complete box 1, 2, & 2a.
Was the employee admitted to a hospital or equivalent medical facility for treatment?	Circle the best answer: ☐ Yes ☐ No If yes, complete box 1, 2, 2a, & 3.
1.) What was the medical treatment?:	
2.) Name of Medical Provider:	2a.) Medical Telephone:
3.) Hospital/facility name:	3a.) Hospital's Telephone:

RESTRICTION OF MOTION	
As a result of the injury, did a physician restrict the duties of the employee?	Circle the best answer: ☐ Yes ☐ No
As a result of the injury and/or employee restriction, was the employee transferred to another job assignment?	Circle the best answer: ☐ Yes ☐ No

INSTRUCTION: AT THIS POINT

IF ALL QUESTIONS ARE "NO" – THEN DO THIS:

If all the answers to the above questions are "NO," then the employee injury is NOT an OSHA recordable. This means that the employee injury/illness did NOT involve any medical treatment, days away from work, and/or restricted duties. You can STOP now and submit this worksheet to the Safety Department.

IF ONE OR QUESTIONS ARE "YES" – THEN DO THIS:

If any one of the answers to the above questions was "YES," then you will need to complete the FOLLOW-UP INFORMATION section below. Once you have all the information complete, then submit this worksheet to the Safety Department. *This section can not be completed until the employee returns to work and is off light duty.*

FOLLOW-UP INFORMATION		Note: Do not count the day of the injury. Do not count days on which the employee would not have worked even though able to work (days off, holiday, vacations, etc.)	
42.) Number of Days away from work:	43.) Date return to work:	44.) Number of days of Light-Duty	45.) Date off Light-Duty:

MEDICAL TREATMENT VS FIRST AID

Medical treatment. The following procedures are generally considered medical treatment. Injuries for which this type of treatment was provided or should have been provided are almost always recordable if the injury IS work related:

* Treatment of INFECTION
* Application of ANTISEPTICS during second or subsequent visit to medical personnel
* Treatment of SECOND OR THIRD DEGREE BURN(S)
* Application of SUTURES (stitches)
* Application of BUTTERFLY ADHESIVE DRESSING(S) or STERI STRIP(S) in lieu of sutures
* Removal of FOREIGN BODIES EMBEDDED IN EYE
* Removal of FOREIGN BODIES FROM WOUND; if procedure is COMPLICATED because of depth of embedment, size, or location
* Use of PRESCRIPTION MEDICATIONS (except a single dose administered on first visit for minor injury or discomfort)
* Use of hot or cold SOAKING THERAPY during second or subsequent visit to medical personnel
* Application of hot or cold COMPRESS(ES) during second or subsequent visit to medical personnel
* CUTTING AWAY DEAD SKIN (surgical debridement)
* Application of HEAT THERAPY during second or subsequent visit to medical personnel
* Use of WHIRLPOOL BATH THERAPY during second or subsequent visit to medical personnel
* POSITIVE X-RAY DIAGNOSIS (fractures, broken bones, etc.)
* ADMISSION TO A HOSPITAL or equivalent medical facility FOR TREATMENT.

First aid treatment. The following procedures are generally considered first aid treatment (e.g., one-time treatment and subsequent observation of minor injuries) and should not be recorded if the work-related injury does not involve loss of consciousness, restriction of work or motion, or transfer to another job:

* Application of ANTISEPTICS during first visit to medical personnel
* Treatment of FIRST DEGREE BURN(S)
* Application of BANDAGE(S) during a visit to medical personnel
* Use of ELASTIC BANDAGE(S) during first visit to medical personnel
* Removal of FOREIGN BODIES NOT EMBEDDED IN EYE if only irrigation is required
* Removal of FOREIGN BODIES FROM WOUND; if procedure is UNCOMPLICATED, and is, for example, by tweezers or other simple technique
* Use of NONPRESCRIPTION MEDICATIONS AND administration of single dose of PRESCRIPTION MEDICATION on first visit for minor injury or discomfort
* SOAKING THERAPY on initial visit to medical personnel or removal of bandages by SOAKING
* Application of hot or cold COMPRESS(ES) during first visit to medical personnel
* Application of OINTMENTS to abrasions to prevent drying or cracking
* Application of HEAT THERAPY during first visit to medical personnel
* Use of WHIRLPOOL BATH THERAPY during first visit to medical personnel
* NEGATIVE X-RAY DIAGNOSIS
* OBSERVATION of injury during visit to medical personnel.

BOMBARDIER
AEROSPACE

Glossary of Terms: MSDSs

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The following glossary presents brief explanations of acronyms and common terms frequently used by chemical manufacturers on their Material Safety Data Sheet's (MSDS).

Absorption	(a) Penetration of a substance into the body of another; (b) transformation into other forms suffered by radiant energy passing through a material substance; (c) adhesion of the molecules of a gas, liquid or dissolved substance to a surface.
ACGIH	American Conference of Governmental Industrial Hygienists is an organization of professional personnel in governmental agencies or educational institutions engaged in occupational safety and health programs. ACGIH establishes recommended occupational exposure limits for chemical substances and physical agents (See TLV).
Acid	Any chemical that undergoes dissociation in water with the formation of hydrogen ions. Acids have a sour taste and may cause severe skin burns. Acids turn litmus paper red and have pH values of 0 to 6.
Acute Effect	Adverse effect on human or animal that has severe symptoms developing rapidly and coming quickly to a crisis.
Acute Toxicity	Acute effects resulting from a single dose of exposure to, a substance. Ordinarily used to denote effects in experimental animals.
Adsorption	Attachment of the molecules of a gas or liquid to a surface of another substance. This procedure is often used for the removal of a hazardous substance from water or air with activated carbon.
Adenocarcinoma	A tumor with glandular (secreting) elements.
Adenosis	Any disease of a gland.
Adhesion	A union of two surfaces that are normally separate.
Aerosol	Liquid droplets or solid particles dispersed in air, that are of fine enough particle size (0.01 to 100 microns) to remain so dispersed for a period of time.

Glossary of Terms: MSDSs

Air-line Respirator	A respirator that is connected to a compressed breathable air source by a hose of small inside diameter. The air is delivered continuously or intermittently in a sufficient volume to meet the wearers breathing requirements.
Air Purifying Respirator	A respirator that uses chemicals to remove specific gases and vapors from the air or that uses a mechanical filter to remove particulate matter. An air-purifying respirator must only be used when there is sufficient oxygen to sustain life and the air contaminant level is below the concentration limits of the device.
Alkali	Any chemical substance that forms soluble soaps with fatty acids. Alkalis are also referred to as bases. They may cause severe burns to the skin. Alkalis turn litmus paper blue and have pH values from 8 to 14.
Allergic Reaction	An abnormal physiological response to chemical or physical stimuli.
Alpha Particle (a)	A radioactive decay emanation of relatively low penetrating power, traveling only a few millimeters in air. An alpha particle is a double-charged helium ion, with a positive charge of 2 and a mass number of 4.
Amenorrhea	Absence of menstruation.
Anesthetic	A chemical that causes a total or partial loss of sensation. Overexposure to anesthetics can cause impaired judgement, dizziness, drowsiness, headache, unconsciousness, and even death. Examples include alcohol, paint remover, and degreasers.
ANSI	American National Standards Institute is a privately funded, voluntary membership organization that identifies industrial and public needs for national consensus standards and coordinates development of such standards.
Antidote	A remedy to relieve, prevent, or counteract the effects of poison.
API	American Petroleum Institute is an organization of the petroleum industry.
Appearance	A description of a substance at normal room temperature and normal atmospheric conditions. Appearances include color, size and consistency of a material.

Aquatic Toxicity	The adverse effects to marine life that results from being exposed to a toxic substance.
Asbestosis	Lung disease caused by asbestos exposure.
Asphyxiant	A vapor or gas that can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce oxygen in the air (below 19.5%) to dangerous levels. Asphyxiation is one of the principal potential hazards of working in confined and enclosed spaces.
ASTM	American Society for Testing and Materials is the world's largest source of voluntary consensus standards for materials, products, systems, and services. ASTM is a source for sampling and testing methods, health and safety aspects of materials, safe performance guidelines, effects of physical and biological agents and chemicals.
Asymptomatic	Showing no symptoms.
Atm	Atmosphere, a unit of pressure equal to 760 mmHg (mercury) at sea level.
Atrophy	Arrested development or wasting away of cells and tissue.
Auto-ignition Temperature	The minimum temperature at which the material will ignite without a spark or flame being present. Along with the flashpoint, auto-ignition temperature gives an indication of relative flammability.
BAL	British Anti-Lewisite – a name for the drug dimecaprol – a treatment for toxic inhalations.
Base	Any material that produces hydroxide (OH) ions when dissolved in water. Other properties include bitter taste, slippery feel in solutions, and the ability to react with acids to form salts.
BCM	Blood-clotting mechanism effects.
Berrn	A barrier constructed to control or confine hazardous substances and prevent them from entering sewers, ditches, streams, or other bodies of water. A mound or wall to prevent fluid migration. See "Dike".

Beta Particle	A fast moving particle emitted by atomic nucleus during radioactive decay. These particles may be either positively or negatively charged, and one MeV particle can travel 400 cm in air but only 0.5 cm in water.
Biodegradable	Capable of being broken down into innocuous products by the action of living things.
Biopsy	Removal and examination of tissue from the living body.
BLD	Blood effects
BMP	Best Management Practices
Boiling Point	The temperature at which a liquid changes to a vapor state at a given pressure. The boiling point is usually expressed in degrees Fahrenheit at sea level. For mixtures the initial boiling point or the boiling range may be given.

Flammable materials with low boiling points generally present special fire hazards. Some approximate boiling points:

Propane	-44°F
Anhydrous Ammonia	-28°F
Butane	31°F
Gasoline	100°F
Allyl Chloride	113°F
Ethylene Glycol	387°F

Breathing Zone	Air sample collected in the breathing area (around the nose) of a worker to assess his or her exposure to airborne contaminants.
Bonding	The interconnecting of two objects by means of a clamp and bare wire. Its purpose is to equalize the electrical potential between the objects to prevent a static discharge when transferring a flammable liquid from one container to another. The conductive path is provided by clamps that contact with the charged object and a low resistance flexible cable, which allows the charge to equalize. See Grounding.
Bulk Density	Mass of powdered or granulated solid material per unit of volume.
c	Centigrade, a unit of temperature. (Celsius)

Ceiling Limit	The maximum allowable human exposure limit for an airborne substance, not to be exceeded even momentarily. (also see "PEL" and "7LV").
ca	Approximately
CAA	Clean Air Act
Canister	A container filled with sorbents and catalysts that remove gases and vapors from air drawn through the unit. The canister may also contain an aerosol (particulate) filter to remove solid or liquid particles. (air-purifying only)
Carcinogen	A substance capable of causing cancer.
Carcinogenicity	The ability to produce cancer.
CAS	Chemical Abstract Service is an organization under the American Chemical Society. CAS abstracts and indexes chemical literature from all over the world in "Chemical Abstracts." "CAS Numbers" are used to identify specific chemicals or mixtures.
Caustic	Capable of destroying or eating away by chemical action. (See Alkali).
cc	Cubic Centimeter. A volume measurement in the metric system equal in capacity to one milliliter (ml). One quart is about 946 cubic centimeters.
CDC	Center for Disease Control
Centigrade	The international scale used for measuring temperature, in which 100°C is the boiling point of water at sea level (one atmosphere, and O°C is the freezing point. (Celsius)
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (Superfund of 1980).
CFC / chloro-fluorocarbons	Used as a propellant in aerosol cans. CFC pose no hazards in the workplace, but is a large contributor to ozone depletion in the upper atmosphere. This substance remains stable until it reaches the ozone layer, where it breaks down ozone molecules into an acid.

CFR	Code of Federal Regulations. A collection of the regulations that have been promulgated under United States Law.
Chemical Family	A group of single elements or compounds with a common or general name. Example: acetone, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK), are of the "Ketone" family; acrolein, furfural, and acetaldehyde are of the "aldehyde" family.
Chemical Name	The name given to a chemical in the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstract Service (CAS). The scientific designation of a chemical or a name that will clearly identify the chemical for hazard evaluation purposes.
Chemical Pneumontitis	Inflammation of the lungs caused by accumulation of fluids to chemical irritation.
CHEMTREC	Chemical Transportation Emergency Center is a national center established by the Chemical Manufacturers Association (CMA) to relay pertinent emergency information concerning specific chemicals on requests from individuals. CHEMTREC has a 24 hour toll-free telephone number to assist the emergency response to transportation emergencies. The telephone number is (800) 424-9300.
CNS	Central Nervous System includes the brain and the spinal cord. These organs supervise and coordinate the activity of the entire nervous system. Sensory impulses are transmitted into the central nervous system, and motor impulses are transmitted out to the body.
Chronic Effect	An adverse effect on a human or animal body, with symptoms that develop slowly over a long period of time or that reoccur frequently. (Also see Acute).
Chronic Exposure	Long-term contact with a substance
Chronic Toxicity	Adverse (chronic) effects resulting from repeated doses of, or exposure to , a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.
Clean air Act	See CAA.
Clean Water Act	Federal law enacted to regulate/reduce water pollution. CWA is administered by the EPA.

CO	Carbon monoxide is a colorless, odorless, flammable, and very toxic gas produced by the incomplete combustion of carbon. It is also a by-product of many chemical processes. As a chemical asphyxiant, it reduces the blood's ability to carry oxygen. Hemoglobin absorbs CO two hundred times more readily than it does oxygen.
CO2	Carbon dioxide is a heavy, colorless gas that is produced by the combustion and decomposition of organic substances and as a by-product of many chemical processes. CO2 will not burn and is relatively non-toxic. However, high concentrations, especially in confined spaces, can create hazardous oxygen-deficient environments.
coc	Cleveland Closed Cup is a flashpoint test method.
Combustible	A term used by NFPA, DOT, and others to classify certain liquids that will burn on the basis of flashpoints. NFPA Class 11 liquids include those with flashpoints at or above 100°F (37.8°C), and below 140°F (93.3°C), the total of which makeup 99% or more of the total volume of the mixture. DOT classifies combustible as a material with a flashpoint above 100°F to 200°F.
Combustion	The chemical combination of oxygen with another element or compound, induced by high temperature and resulting in the formation of one or more new compounds; this process is often called burning.
Common Name	Any means used to identify a chemical other than its chemical (e.g., code name, code number, trade name, brand name, or generic name). See Generic.
Compressed Gas	(a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 pounds per square inch (psi) at 70°F (21.1°C); or (b) A gas or mixture of gases having in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or (c) A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D-323-72.

Conc.	See Concentration
Concentration	The relative amount of a substance when combined or mixed with other substances. Examples: 2 ppm hydrogen sulfide in air, or a 50 percent caustic solution.
Conditions to Avoid	Conditions encountered during handling or storage that could cause a substance to become unstable.
Confined Spaces	Any area that has limited openings for entry and exit that would make escape difficult in an emergency, has a lock of ventilation, contains known and potential hazards, and is not intended nor designated for continuous occupancy.
Conjunctivitis	Inflammation of the conjunctiva, the delicate membrane that lines the eyelids and covers the eyeballs.
Container	Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of MSDS or HCS, pipes or piping systems are not considered to be containers.
Corrosion	An electrochemical change in a metal surface, caused by reaction of the metal with one or more substances with which it is in contact for long periods of time. Corrosion usually has a harmful effect on the metal surface.
Corrosive	A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive, if when tested on intact skin of albino rabbits by the method described by the DOT in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the point of contact following an exposure period of 4hours. This term shall not refer to action on inanimate surfaces.
Corrosive Acids	A liquid or solid, excluding poisons, that causes visible destruction or irreversible alteration in human skin tissue at the point of contact; or has a severe corrosion rate on steel. Liquids show a pH of 6.0 down to 0. (See DOT Title 49 CFR 173.240).

Corrosive Alkaline	A liquid or solid, excluding poisons, that causes visible destruction or irreversible alteration in human skin tissue at the point of contact; or has a severe corrosion rate on steel. Liquids show a pH of 8.0 to 14. (See DOT – Title 49 CFR 193.240).
CPR	Cardiopulmonary resuscitation.
CPSC	Consumer Products Safety Commission (CPSC) has responsibility for regulating hazardous materials when they appear in consumer goods. For CPSC purposes, hazards are defined in the Hazardous Substances Act and the poison Prevention Packaging Act of 1970.
Cureftage	Cleansing of a diseased surface.
Cutaneous Toxicity	See "Dermal Toxicity".
CWA	Clean Water Act (CWA) was enacted to regulate/reduce water pollution. It is administered by the EPA.
Cyanosis	Blue appearance of the skin, especially on the face and extremities, indicating a lack of sufficient oxygen in the arterial blood.
Cyst	A closed sac having a distinct membrane and developing abnormally in a cavity or structure of the body. Most cysts are harmless.
Cytology	A branch of biology dealing with the structure, function, multiplication, pathology, and life history of cells.
Dangerous When Wet	A label required for certain materials being shipped under US DOT, ICAO, and IMO regulations. Any of this labeled material that is in contact with water or moisture may produce flammable gases. In some cases, these gases are liable to spontaneously combust.
Decomposition	Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay or other processes) into parts or elements or simpler compounds.
Density	The mass (weight) per unit volume of a substance. For example, lead is much denser than aluminum.
Depressant	A substance that reduces a bodily functional activity or an instinctive desire, such as appetite.

Glossary of Terms: MSDSs

Dermal	Relating to the skin and especially the dermis.
Dermal Toxicity	Adverse effects resulting from skin exposure to a substance. Ordinarily used to denote effects in experimental animals.
Dermatitis	Inflammation of the skin from any cause. There are two general types of skin reaction: Primary irritation and sensitization dermatitis. (See irritant and sensitizer).
Desiccant	A substance such as silica gel that removes moisture (water vapor) from the air and is used to maintain a dry atmosphere in containers of food or chemical packaging.
DHHS	U. S. department of Health and Human Services (replaced U. S. Department of Health, Education and Welfare) NOISH and the Public Health Service (PHS) are party of DHHS.
Dike	A barrier constructed to control or confine hazardous substances and prevent them from entering sewers, ditches, streams, or other bodies of water. (See "Berm").
Dilution Ventilation	Air flow designed to dilute contaminants to acceptable levels. (Also see general ventilation or exhaust).
Dioxin	The compound 2,3,7,84eteachlorodibenzo-p-dioxin, a member of the chlorinated dioxins. It is a carcinogen, teratogen, and mutagen, and was present in the defoliant Agent Orange used in Vietnam War. (Note: Recent studies suggest dioxins may not be a dangerous as initial studies suggest.)
Disposal Drum	A non-professional reference to a drum used to overpack damaged or leaking containers of hazardous materials for shipment; the proper shipping name is Salvage Drum as cited in Title 49 CFR 173.3.
DOL	U. S. Department of Labor. OSHA and MSHA are part of the DOL.
Dose	The amount of energy or substance absorbed in a unit volume or an organ or individual. Dose rate is the dose delivered per unit of time. (Also see Roentgen, RAD, and REM).
DOT	U. S. Department of Transportation regulates transportation of chemicals and other substances.

Dry Chemical	A powdered fire extinguisher agent usually composed of sodium bicarbonate, potassium bicarbonate, etc.
Dust	Solid particles generated by handling, crushing, grinding, rapid impact, detonation, and decapitation of organic or inorganic materials, such as rocks ore, metal, coal, wood, and grain. Dusts do not tend to flocculate except under electrostatic forces; they do not diffuse in air but settle under the influence of gravity.
Dysmenorrhea	Painful Menstruation.
Dysplasia	Abnormality of growth or development.
Dyspnea	A sense of difficulty in breathing or labored breathing.
Ecology	A branch of science concerned with interrelationship of organisms and their environments; the totality or pattern of relations between organisms and their environment.
Ectopic pregnancy	A fertilized ovum becomes implanted outside of the uterus.
Edema	An abnormal accumulation of clear watery fluid in the tissues.
Effluent Guidelines	Minimum, technology-based levels of pollution reduction that point sources must attain. (CWA)
Effluent Limitations	Specific control requirements directed at a specific discharge site. (CWA)
Endocrine Glands	Glands that regulate body activity by secreting hormones.
Endometrium	The mucous membrane lining the uterus.
Environmental Toxicity	Information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.
EPA	United States Environmental Protection Agency.

Epidemiology

The science that deals with the study of disease in a general population. Determination of the incidence (rate of occurrence) and distribution of a particular disease (as age, sex, or occupation) may provide information about the cause of the disease.

Etiological Agent

A viable microorganism or its toxin, which causes or may cause human disease. The terms "Infectious substances" and "Etiologic Agents" are synonymous.

Evaporation Rate

The rate at which a particular material will vaporize (evaporate) when compared with the rate of vaporization of a known material. The evaporation rate can be useful in evaluating the health and fire hazards of a material. The known material is usually normal butyl acetate (NBUAC or n-Bu-Ac), with a vaporization rate designated as 1.0. Vaporization rates of other solvents or materials have three classifications:

(1) FAST evaporating if greater than 3.0. Example: Methyl Ethyl Ketone (MEK) = 3.8, Evaporation Rate Acetone = 5.6, Hexane = 8.3.
(2) Medium evaporating if 0.8 to 3.0. Examples: 190 proof (95%) ethyl alcohol = 1.4, WM&P Naphtha = 1.4, MIBK = 1.6
(3) Slow evaporating if less than 0.8. Examples: Xylene = 0.6, Isobutyl alcohol = 0.6, Normal butyl alcohol = 0.4, Water = 0.3, Mineral spirits = 0.1.

Exotoxin

A toxin produced and delivered by a microorganism into the surrounding medium.

Explosion-proof Equipment

Apparatus enclosed in a case capable of with standing an explosion of a specified gas or vapor that may occur and of preventing the ignition of a specified gas or vapor surrounding the enclosure by sparks, flash, or explosion of the gas or vapor within, and that operates at an external temperature such that a surrounding flammable atmosphere will not be ignited.

Explosive, Class A

Any of nine types of explosives as defined in Title 49 CFR 173.53 and listed in Title 49 CFR 172.101. Any chemical compound, mixture, or device having the primary or common purpose to function by detonation (i.e., with substantial instantaneous release of gas and heat unless such compound, mixture, or device is otherwise classified for storage or transportation).

Explosive, Class B	Explosives that, in general, function by rapid combustion rather than detonation and include some explosive devices such as special fireworks, flash powders, some pyrotechnic signal devices, and solid or liquid propellant explosives including some smokeless powders. These explosives are listed in Title 49 CFR 172.101 and Title 49 CFR 173-100.
Explosive, Class C	Certain types of manufactured articles that contain Class A or Class B explosives, or both, as components but in restricted quantities; certain types of fireworks. These explosives are listed and defined in Title 49 CFR 172.101 and Title 49 CFR 173.100.
Explosive Limits	Some items have a minimum and maximum concentration in air, which can be detonated by spark, shock, fire, etc. The lowest concentration is known as the upper explosive limit (UEL).
Exposure	Subjection of a person to a toxic substance or harmful physical agent in the course of employment through any route of entry (e.g., inhalation, ingestion, injection, or absorption); includes past exposure and potential (e.g., accidental or possible) exposure, but does not include situations where the employer can demonstrate that the toxic substance or harmful physical agent is not used, handled, stored, generated, or present in the workplace in any manner different from typical non-occupational situations. An exposure to a substance or agent may or may not be an actual health hazard to the worker. An industrial hygienist evaluates exposures and determines if permissible exposure levels are exceeded.
Extraction	The removal of soluble components from a solid or liquid mixture by means of an appropriate solvent.
°F	Degrees in Fahrenhiet.
Fahrenhiet	The scale of temperature in which 212° is the boiling point of water at 760 mm Hg and 32° is the freezing point.
FHSLA	Federal Hazardous Substance Labeling Act.
Fibrosis	A disease resultant from the inhalation of fibers.
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act.

Flammable

A chemical that includes one of the following categories:

(a) "Aerosol, flammable." An aerosol that, when tested yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening.

(b) "Gas, flammable." (1) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13 percent by volume or less: or (2) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with wider than 12 percent by volume, regardless of the lower limit.

(c) "Liquid, flammable." Any liquid having a flashpoint below 100°F (37.8°C0, except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of mixture.

(d) "Solid, flammable." A solid, other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard.

Flammable Limits

Flammable liquids produce (by evaporation) a minimum and maximum concentration of flammable gases in the air that will support combustion. The lowest concentration is known as the lower flammable limit (LFL0. The highest concentration is known as the upper flammable limit (UFL).

Flashback

Occurs when flame from a torch burns back into the tip, the torch, or hose. It is often accompanied by a hissing or squealing sound with a smoky or sharp pointed flame.

Flashpoint

The lowest temperature at which a liquid gives off enough vapor to form an ignitable mixture with air and produce a flame when a source of ignition is present. Two tests are used – open cup and closed cup.

Foreseeable Emergency

Any potential occurrence such as, but not limited to, failure of control equipment, equipment failure, or rupture of containers, which could result in an uncontrolled release of a hazardous chemical into the workplace.

Formula

The scientific expression of the chemical composition of a material (e.g., water is H^2O, Sulfuric acid is H^2SO_4, and sulfur dioxide is SO^2).

FP or fl.pt	Flashpoint.
Friable	Capable of being pulverized with hand pressure as relates to asbestos. (Title 29 CFR 191.0)
Ft^3	Cubic feet. Volumetric measurement calculated by multiplying length by width by depth, all in feet, of an item or space.
Fully Encapsulating Suits	Full chemical protective suits that are impervious to chemicals, offer full body protection from chemical exposure and their vaporst fumes, and are to be used with self-maintained breathing apparatus (SCBA).
Fume	A solid concentration particle of extremely small diameter, commonly generated form molten as metal fume.
g	Gram is a metric unit of weight. One ounce U.S. (avoirdupois) is about 28.4 grams.
General Exhaust	A system for exhausting air contaminants for a general work area.
Genetic	Pertaining to or carried by genes. Hereditary.
Genetic Effects	Mutations or other changes, which are produced by irradiation of germ plasma.
Gestation	The development of the fetus in the uterus from conception to birth: Pregnancy.
g/kg	Grams per kilogram is an expression of dose used in oral and dermal toxicology testing to denote grams of a substance dosed per kilogram of animal body weight. (Also see "kg" [kilogram]).
Grounding	The procedure used to carry an electrical charge to ground through a conductive path. A typical ground may be connected directly to a conductive water pipe or to a grounding bus and ground rod. (See Bonding).
HAP	Heirarchical Analytical Protocol. A procedure identified by the EPA to demonstrate the presence or absence of RCRA (Title 40 CFR) classes or Appendix VIII compounds in groundwater.

Hand Protection	Specific types of gloves or other hand protection required to prevent harmful exposure to hazardous materials.
Hazardous Air Pollutants	A pollutant to which no ambient quality standard is applicable and that may cause or contribute to an increase in mortality or in serious illness. For example; asbestos, beryllium, and mercury have been declared hazardous air pollutants.
Hazardous Chemicals	Chemicals or materials used in the workplace that are regulated under OSHA Hazard Communication Standard or the "Right-to-Know" regulations in Title 29 CFR 1910.1200.
Hazardous Material	In a broad sense, a hazardous material 9HM) is any substance or mixture of substances having properties capable of producing adverse effects on the health and safety or the environment of a human being. Legal definitions are found in individual regulations.
Hazardous Warning	Words, pictures, symbols, or combination thereof presented on a label or other appropriate form to inform of the presence of various materials.
Hazardous Waste Generation	The act or process of producing hazardous waste.
Hazardous Waste Leachate	An excavation or engineered area on which hazardous waste is deposited and covered; proper protection of the environment from the materials to be deposited in such a landfill requires careful site selection, good design, proper operation, leachate collection and treatment, and thorough final closure.
Hazardous Waste Management	Systematic control of the collection, source separation storage, transportation, processing, treatment recovery, and disposal of hazardous wastes.
Hazardous Waste Number	The number assigned to each hazardous waste listed by EPA and to each hazardous waste characteristic.
HCS or HAZCOM	Hazard Communication Standard is an OSHA regulation issued under 29 CFR Part 1910.1200.

Health Hazard	A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.
Hemoglobin	An iron-maintaining conjugated protein or respiratory pigment occurring in the red blood cells of vertebrates.
Hematoma	A blood clot under the surface of the skin.
Hemotopoletic System	The blood forming mechanism of the human body.
Hematuria	The presence of blood in the urine.
Hepititis	Inflammation of the liver.
Hepatotoxin	A substance that causes injury to the liver.
Herbicide	A chemical intended for killing plants or interrupting their normal growth. A weed, grass or brush killer (also see pesticides).
Highly Toxic	A chemical in any of the following categories: (a) A chemical with a median lethal doze (LD5o) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighting between 200 and 300 grams each. (b) A chemical with a median lethal dose (LDw) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighting between 2 and 3 kilograms each. (c) A chemical that has a median lethal concentration (LC5o) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing 200 and 300 grams each.

HMTA	Hazardous Materials Transportation Act (1975).
Hormones	Act as chemical messengers to body organs.
HSWA	Hazardous and Solid Waste Amendments of 1984.
Hygroscopic	Condition of reduced body temperature.
Hyperplasia	Increase in volume of a tissue or organ caused by the growth of new cells.
IARC	International Agency for Research on Cancer.
IATA	International Air Transport Association.
ICAO	International Civil Aviation Organization.
IDLH	Immediately Dangerous to Life and Health. An environmental condition which would immediately place a worker in jeopardy. Usually used to describe a condition existing where self-contained breathing apparatus must be used.
ID Number (DOT Usage)	A four-digit number preceded by UN or NA, assigned to hazardous materials and dangerous goods (see column 3a of the Hazardous Materials Table included in Title 49 CFR 172.101 and column 4 of Title 49 CFR 1007.102. Note also the cross-reference list for number-to-name that follows the Hazardous Materials Table 102 as Appendix A.
Ignitable	Capable of being set afire.
IMO	International Maritime Organization (formerly IMCO).
Impervious	A material that does not allow another substance to pass through or penetrate.
Incineration	An engineered process using controlled flame combustion to thermally degrade waste materials. Devices normally used for incineration include rotary kilns, fluidized beds, and liquid injectors. Incineration is used particularly for the destruction of organic wastes with a high BTU value. The wastes are detoxified by oxidation, and if the heat produced is high enough, they can sustain their own combustion and will not require additional fuel. EPNs draft regulations specify a recommended

temperature of 1000°C (1832°F), with a residence time (the time the gases should stay in the combustion chamber) of 2 seconds.

Incompatible — Materials that could cause dangerous reactions by direct contact with one another.

Incompatible Waste — Waste unsuitable for co-mingling with another waste or material, where the co-mingling might result in the following:

1. Extreme heat or pressure generation.
2. Fire.
3. Explosion or violent reaction.
4. Formation of substances that are shock sensitive, friction sensitive, or otherwise have the potential to react violently.
5. Formation of toxic dusts, mists, fumes, gases or other chemicals.
6. Volatization of ignitable or toxic chemicals due to heat generation, in such a manner that, the likelihood of contamination of ground water or escape of the substances into the environment.

Industrial Waste — Unwanted materials produced in or eliminated from an industrial operation. They may be categorized under a variety of headings, such as liquid wastes, sludge waste, and solid wastes. Hazardous wastes contain substances that in low concentrations are dangerous to life (especially humans) for reasons of toxicity, corrosiveness, mutagenicity, and flammability.

Infectious Waste — Waste that contains pathogens or consists of tissues, organs, body parts, blood, and bodily fluids that are removed during surgery or other procedures. See Title 42 CFR 72 (also see Biologically Hazardous Waste).

Ingestion — Taking in by mouth.

Inhalation — Breathing in of a substance in the form of a gas, vapor, fume mist, or dust.

Inhibitor — A chemical added to another substance to prevent an unwanted chemical change.

Injection — The subsurface emplacement of a fluid or waste.

Inorganic Material	Chemical substances of mineral origin, not containing carbon bonding. Generally structured through ionic bonding.
Insoluble	Incapable of being dissolved in a liquid.
Intrauterine	Within the uterus.
Irritant	A chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for 4 hours exposure or by other appropriate techniques, it results in an empirical score of 5 or more.
kg	Kilograms is a metric unit of weight, about 2.2 U.S. pounds. Also see "g/kg".
L	Liter is a metric unit of capacity. A U.S. quart is about 9/10 of a liter.
Lacrimation	Secretion and discharge of tears.
Label	Notice attached to a container, bearing information concerning its contents.
Lactation	The secretion of milk by the breasts.
LC	Lethal concentration is the concentration of a substance being tested that will kill the test subjects.
LCL	Lethal concentration is the lowest concentration of a gas or vapor capable of killing a specified species over a specified time.
LC_{50}	A single dose of a material expected to kill 50 percent of a group of test animals. The LCw dose is usually expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth or applied to the skin.
LD_{50}	Median Lethal Dose. The dose which is required to produce death in 50 percent of the exposed species. Death is usually reckoned as occurring within the first 30 days.

LEL, or LFL	Lower Explosive Limit, or Lower Flammable Limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in the air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. (Also see "UEL").
Lesion	Any damage to a tissue.
LFM	Linear Feet per Minute. A unit of air velocity.
Local Exhaust	A system for capturing and exhausting contaminants from the air at the point where the contaminants are produced. Examples are: welding, grinding, sanding, other processes or operations. (Also see "General Exhaust").
M	Meter is a unit of length in the metric system. One meter is about 39 inches.
m^3	Cubic meter is a metric measure of volume. One cubic meter is approximately 35.3 cubic feet or 1.3 cubic yards.
Malaise	A feeling of general discomfort, distress, or uneasiness, an out-of-sorts feeling.
Malignant	Tending to become progressively worse and to result in death.
Mammary	Pertaining to the breast.
Manifest, Uniform Hazardous Waste	Shipping paper when properly prepared and distributed, provide a tracking system that consists of forms originating with the generator or consignor and following from the generator to disposal in a permitted TSDF.
Manometer	An instrument for measuring pressure that usually consists of a U-shaped tube containing a liquid, the surface of which in one end if the tube moves proportionally with pressure changes on the liquid in the other end. Also, a tube type of differential pressure gauge.
Mechanical Exhaust	A powered devise, such as a motor-driven fan or air stream venturi tube, for exhausting contaminants from a workplace, vessel, or enclosure.

Mechanical Filter Respirator	A respirator used to protect against airborne particulate matter like dusts, mists, metal fume, and smoke. Mechanical filter respirators do not provide protection against gases, vapors, or oxygen deficient atmospheres.
Melting Point	The temperature at which a solid substance changes to a liquid state.
Menorrhagia	Excessive menstruation.
Menstruation	Period discharge of blood from the vagina of a non-pregnant uterus.
Metabolism	Physical and chemical processes taking place among the irons, atoms, and molecules of the body.
Metastasis	The transfer of a disease from one organ or part to another not directly connected with it.
Meter	A unit of length; equivalent to 39.37 inches.
MeV	Million electron-volts
mg	Milligram is a metric unit of weight that is one-thousandth of a gram.
mg/kg	Milligrams of substance per kilogram of body weight is an expression of toxicological dose.
mg/m^3	Milligrams per cubic meter is a unit for expressing concentrations of dusts, gases, or mists in air.
Micron	(Micrometer) A unit of length equal to one-millionth of a meter; approximately 0.000039 of an inch.
Mist	Suspended liquid droplets generated by condensation form the gaseous to the liquid state, or by breaking up a liquid into a dispersed state, such as splashing, foaming, or atomizing. Mist is formed when a finely divided liquid is suspended in air.
Mixture	Any combination of two or more chemicals if the combination is not, in whole or part, the result of a chemical reaction.
ml	Milliliter is a metric unit of capacity, equal in volume to 1 cubic centimeter (cc), or approximately one-sixteenth of a cubic inch. One-thousandth of a liter.

mm/Hg	Millimeters (mm) of mercury (Hg) is a unit of measurement for low pressures or particle vacuums.
Molecular Weight	Weight (mass) of a molecule based on the sum of the atomic weights of the atoms that make up the molecule.
mppcf	Million particles per cubic foot is a unit for expressing concentration of particles of a substance suspended in air. Exposure limits for mineral dusts (silica, graphite, Portland cement, nuisance dusts, and others), formerly expressed as mppcf, are now more commonly expressed in mg/m^3.
MSDS	Material Safety Data Sheet. An MSDS must be in English and include information regarding the specific identity of the hazardous chemicals. Also includes information on health effects, first air, chemical and physical properties and emergency phone numbers.
MSHA	Mine Safety and Health Administration. Part of the U.S. Department of Labor.
Mutagen	A substance or agent capable of altering the genetic material in a living cell.
mw	See molecular weight.
NFPA	National Fire Protection Association is an international membership organization, which promotes to improve fire protection, prevention, and establishes safeguards against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes – 16 volumes of codes, standards, recommended practices and manuals developed (and periodically updated) by NFPA technical committees. Among these in NFPA 704M, the code for showing hazards of materials as they might be encountered under fire or related emergency conditions, using the familiar diamond-shaped label or placard with appropriate numbers or symbols.
ng	Nanogram, one-billionth of a gram.

NIOSH	National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services (DHHS). Federal agency which, among other activities, tests and certifies respiratory protective devices and air sampling detector tubes, recommends occupation safety and health investigations and research.
Nonflammable	Not easily ignited, or if ignited, not burning rapidly.
Non-Sparking Tools	Tools made from plastic, beryllium-copper or aluminumbronze greatly reduce the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.
NOS or n.o.s.	Not otherwise specified (DOT usage).
NOx	Oxides of nitrogen, which are undesirable air pollutants. NO emissions are regulated by EPA under the Clean Air Act.
NPDES	National Pollutant Discharge Elimination System (Water quality usage).
N^2	Nitrogen is a colorless, ordorless, and tasteless gas that will not burn and will not support combustion. The earth's atmosphere (air) is about 78 percent nitrogen. At higher concentrations, nitrogen can displace oxygen and become a lethal asphyxiant. (See Asphyxiant).
NA Number	North American identification number. When NA precedes a four-digit number, it indicates that this identification number is used in the United States and Canada to identify a hazardous material (HM) or a group of HMs in transportation. (i.e., NA 1203)
Narcosis	A state of stupor, unconsciousness, or arrested activity produced by the influence of narcotics or other chemicals.
Nausea	Tendency to vomit, feeling of sickness at the stomach.
NCI	National Cancer Institute is the part of the National Institutes of Health that studies cancer causes and prevention as well as diagnosis, treatment, and rehabilitation of cancer patients.
NESHAPs	National Emission Standards for Hazardous Air pollutants. CAA Section 112 also refers to chemicals regulated under this program.

Neo	See neoplasia.
Neonatal	The first 4 weeks after birth.
Neoplasia	A condition characterized by the presence of new growths (tumors).
Nephrotoxin	A substance that causes injury to the kidneys.
Neutralize	To eliminate potential hazards by inactivating strong acids, caustics, and oxidizers. For example, acids can be neutralized by adding an appropriate amount of caustic substance to the spill.
NRC	(1) National Response Center is a notification center that must be called when significant oil or chemical spills or other environment-related accidents occur. The toll free number is 1-800-424-8002. (Title 40 CFR usage). (2) Non-reusable container (see Title 49 CFR 173.28 and Title 49 CFR 178.8). (3) Nuclear Regulatory Commission (10 CFR usage).
NTP	National Toxicology Program. The NTP publishes an Annual Report on Carcinogens.
Odor	A description of the smell of the substance.
Odor Threshold	The lowest concentration of a substance's vapor, in air, that can be smelled or sensed.
Olfactory	Relating to the sense of smell.
Oral	Used in or taken into the body through the mouth.
Oral Toxicity	Adverse effects resulting from taking a substance into the body by mouth. Ordinarily used to denote effects in experimental animals.
Organic Peroxide	An organic compound that contains the bivalent –M structure and may be considered – a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

Organogenesis	The formation of organs during development.
ORM (A-E)	Other Regulated Materials. Several classes of ORM materials are recognized (i.e., ORM-A, ORM-B, ORM-C, ORM-D, AND ORM-E).
OSHA	Occupational Safety and Health Administration. Part of the U.S. Department of Labor.
Ovary	The female sex gland in which ova are formed.
Overexposure	Exposure to a hazardous material beyond the allowable exposure limits.
Overpack	Except when reference to a packaging specified in Title 49 CFR Part 178, means an enclosure used by a single consignor to provide protection or convenience in handling of a package or to consolidate two or more packages. "Overpack" does not include a freight container.
Oxidation	In a literal sense, oxidation is a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent. (See Oxidizing Agent).
Oxidizer	A chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, causing fire either by itself or through the release of oxygen or other gases.
Oxidizing Agent	A chemical substance that brings about an oxidation reaction. The agent may: (1) provide the oxygen to the substance being oxidized (in which case the agent has to be oxygen or contain oxygen), or (2) it may receive electrons being transferred from the substance undergoing oxidation (chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen).
Pathogen	Any microorganism capable of causing disease.
Pathologic	Pertaining to or caused by disease.
Pathology	Scientific study of alterations produced by disease.
PEL	Permissible Exposure Limit is an occupational exposure limit established by OSHNs regulatory authority. It may be a time-weighted average (TWA) limit or a maximum-concentration exposure limit.

Percent Volatile	Percent volatile by volume is the percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 700 F (unless some other temperature is specified). Examples: butane, gasoline, and paint thinner (mineral spirits) are 100 percent volatile; their individual evaporation rates vary, but in time, each will evaporate completely.
Pesticides	Any liquid, solid, or gaseous material that demonstrates an oral LD5o of greater than 50 mg/kg but less than 5,000 mg/kg , or an inhalation LC5o of greater than 0.2 mg/L, but less than 20 mg/L, or a dermal LDw of greater than 200 mg/kg but less than 20,000 mg/kg (Title 40 CFR 162).
pH	The symbol relating the hydrogen ion (H+) concentration to that of a given standard solution. A pH of 7 is neutral. Numbers increasing from 8.0 to 14 indicate greater alkalinity. Numbers decreasing from 6.0 to 0 indicate greater acidity.
Phase I	The regulations issued in May 1980 include the identification and listing of hazardous waste, standards for generators and transporters of hazardous waste, standards for owners and operators of facilities that treat, store, or dispose of hazardous waste facility permits, and rules governing delegation of authority to the states. (RCRA Usage).
Phase 11	Technical requirements for permitting a hazardous facility. Sets specific standards for particular types of facilities to ensure the safe treatment, storage, and disposal of hazardous waste on a permanent basis by methods that will protect human health and the environment. Phase 11 standards enable facilities to move from "interim status" to final facility permits.
Physical Hazard	Means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or waterreactive.
Placenta	A structure that grows on the wall of the uterus during pregnancy, through which the fetus is nourished.
PMCC	Pensky-Martens Closed Cup. (See Flashpoint).
Pneumonitis	Inflammation of the lungs characterized by an outpouring of fluid in the lungs. Pneumonia is the same condition, but involves greater quantities of fluid.
Pneumoconiosis	A condition of the lung in which there is permanent deposition of particulate matter and the tissue reaction to its presence.. It may range from

	relatively harmless forms of iron oxide deposition to destructive forms of silicosis.
Poison, Class A	A DOT term for extremely dangerous poisons poisonous gases or liquids that, in very small amounts, either as gas or as vapor of the liquid, mixed with air, are dangerous to life. Examples: phosgene, cyanogen, hydrocyanic acid, nitrogen peroxide.
Poison, Class B	A DOT term for liquid, solid, paste, or semi-solid substances - other than Class A poisons or irritating materials - that are known (or presumed on the basis of animal tests) to be so toxic to humans that they are a hazard to health during transportation.
PPE	Personal Protective Equipment.
Polymerization	A chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is such a reaction that takes place at a rate that releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will list conditions that could start the reaction - and since the material usually contains a polymerization inhibitor, the length of time during which the inhibitor will be effective.
ppb	Parts per billion is the concentration of a gas or vapor in air - parts (by volume) of the gas or vapor in a billion parts of air. Usually used to express extremely low concentrations of unusually toxic gases or vapors: also the concentration of a particular substance in a liquid or solid.
PPM	Parts per million is the concentration of a gas or vapor in air - parts (by volume) of the gas or vapor in a million parts of air, also the concentration of a particulate in a liquid or solid.
Prenatal	Preceding birth
psi	Pounds per square inch (for MSDS purposes) is the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig (pounds per square inch gauge) or psia (pounds per square inch absolute; that is gauge pressure plus seal level atmospheric pressure, or psig plus approximately 14.7 pounds per square inch). (Also see mm/Hg).
Pulmonary	Relating to, or associated with, the lungs.

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Pulmonary Edema	Fluid in the lungs.
Pyrophoric	A chemical that will ignite spontaneously in air at a temperature of 130 F (54.4' C) or below.
RCRA	Resource Conservation and Recovery Act (1 976).
Reaction	A chemical transformation or change. The interaction of two or more substances to form new substances.
Reactive	Tending toward decompostion or other unwanted chemical change during normal handling. (See Unstable).
Reactivity	Chemical reaction with the release of energy. Undesirable effects - such as pressure buildup, temperature increase, formation of noxious, toxic or corrosive byproducts - may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or in storage.
Recovery Drum	A nonprofessional reference to a drum used to overpack damaged or leaking hazardous materials (see disposal drum).
Reducing Agent	In a reduction reaction (which always occurs simultaneously with an oxidation reaction) the reducing agent is the chemical or substance which: (1) combines with oxygen or (2) loses electrons to the reaction. (See Oxidation).
REL	The NIOSH REL (Recommended Exposure Limit) is the highest allowable airborne concentration which is not expected to injure the workers. It may be expressed as a ceiling limit or a time-weighted average (TWA).
Reproductive Toxin	Substances that affect either male or female reproductive systems and may impair the ability to have children.
Respiratory Protection	Devices that will protect the wearees respiratory system from overexposure *by* inhalation to airborne contaminants. Respiratory

	protection is used when a worker must work in an area where he/she might be exposed to concentration in excess of the allowable exposure limit.
Risk Assessment	An investigation of the potential risk to human health or the environment posed by a specific action or substance. The assessment usually includes toxicity, concentration, form, mobility, and potential for exposure of the substance.
Roentgen	A measure of the charge produced as the rays pass through the air.
Routes of Entry	The means by which material may gain access to the body. For example; inhalation, ingestion, skin contact or absorption and injection.
RCRA	Resource Conservation and . Recovery Act is environmental legislation aimed at controlling the generation, treating, storage, transportation, and disposal of hazardous wastes. It is administered by EPA, as the "Cradle to Grave" legislation.
Sarcoma	A tumor that is often malignant.
Self-Contained Breathing Apparatus	A respiratory protection device that consists of a supply or a means of respirable air, oxygen, or oxygengenerating material, carried by the wearer.
Sensitizer	A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.
SETA	Setaflash Closed Tester. (See Flashpoint).
Silicosis	A disease of the lungs (fibrosis) caused by the inhalation of silica dust.
'Skin"	A notation (sometimes used with PEL or TLV exposure data) that indicates that the stated substance may be absorbed by the skin, mucous membranes, and eyes either airborne or by direct contact - and that this additional exposure must be considered part of the total exposure to avoid exceeding the PEL or TLV for that substance.
Skin Absorption	Ability of some hazardous chemicals to pass directly through the skin and enter the bloodstream.

Sludges	High solids content suspensions, sludges, or residues usually resultant from treating air or waste water or other residues from pollution control operations.
Smoke	An air suspension (aerosol) or particles, often originating from combustion or sublimation. Carbon or soot particles less than 0.1 in size result from the incomplete combustion of carbonaceous materials such as coal or oil. Smoke generally contains droplets as well as dry particles.
Solubility in Water	A term expressing the percentage of material (by weight) that will dissolve in water at -ambient temperature. Solubility information can be useful in determining spill cleanup methods and re-extinguishing agents and methods for a material.
Solvent	A substance, usually a liquid, in which other substances are dissolved. The most common solvent is water.
SOP	Standard Operating Procedures
sox	Oxides of sulfur.
SPCC Plan	Spill Prevention, Control and Countermeasures Plan.
Species	On the MSDS'S, species refers to the test animals usually rats, mice, or rabbits - used to obtain the toxicity test data reported.
Specific Chemical Identity	The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any precise chemical designation of a substance.
Specific Gravity	The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float in (or on) water. Insoluble materials with specific gravity greater than 1.0 will sink in water. Most (but not all) flammable liquids have specific gravity less than 1.0 and, if not soluble, will float on water - an important consideration for fire suppression.
Spill or Leak Procedures	The methods, equipment, and precautions that should be used to control or clean up a leak or spill.
Splash-Proof Goggles	Eye protection made of a non-corrosive material that fits snugly against the face, and has indirect ventilation ports.

Spontaneously Combustible	A material that ignites as a result of retained heat from processing, or that will oxidize to generate heat and ignite, or that absorbs moisture to generate heat and ignite.
Squamous	Scaly or platelike.
Stability	The ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions that may cause instability (dangerous change) are stated; for example, temperatures above 150' F; shock from dropping.
STEL	Short-Term Exposure Limit (ACGIH terminology). (See TLV).
Stenosis	Narrowing of a body passage or opening.
Steroid	A complex molecule among which are the male and female sex hormones.
Strict Liability	The defendant may be liable even though he may have exercised reasonable care.
Subcutaneous	Beneath the layers of the skin.
Supplied-Air Respiratom	Air line respirators of self-contained breathing apparatus.
Surface Impoundment	Any natural depression or excavated and/or diked area built into or upon the land, which is fixed, uncovered, and lined, with soil or a synthetic material, and is used for treating, storing, or disposing wastes. Examples include; holding ponds and aeration ponds.
Synonym	Another name or names by which a material is known. Methyl alcohol, for example, is known as methanol or wood alcohol.
Synergism	Cooperative action of substances whose total effect is greater than the sum of their separate effects.
Systemic Poison	A poison that spreads throughout the body, affecting all body systems and organs. Its adverse effect is not localized in one spot or area.
Systemic Toxicity	Adverse effects caused by a substance that affects the body in a general rather than local manner.

Target Organ Effects

The following is a target organ categorization of effects that may occur, including examples of signs and symptoms and chemicals that have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but they are not intended to be all inclusive.

a) Hepatotoxins - Chemicals that produce liver damage.
Signs & Symptoms - Jaundice; liver enlargement. Chemicals - Carbon tetrachloride; nitrosamines.

b) Nephrotoxins - Chemicals that produce kidney damage.
Signs & Symptoms - Edema; proteinuria
Chemicals - Halogenated hydrocarbons; uranium

Target Organ Effects (continued)

c) Neurotoxins - Chemicals that produce their primary toxic effects on the nervous system.
Signs & Symptoms - Narcosis, behavioral changes; decrease in motor functions.
Chemicals - Mercury, carbon disulfide.

d) Aaents that act on blood hematopoietic system Decrease hemoglobin function; deprive body loss of tissues of oxygen. Signs & Symptoms - Cyanosis; consciousness. Chemicals - Carbon monoxide; cyanides

e) Agents that damage the luna - Chemicals that irritate or damage the pulmonary tissue. Signs & Symptoms - Coug tightness in chest, shortness of breath.
Chemicals - Silica; asbestos

f) Reproductive toxins - Chemicals that adversely affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).
Signs & Symptoms - Birth defects; sterility Chemicals - DBCP

g) Cutaneous hazards - Chemicals that affect the dermal lay the body.
Signs & Symptoms - Defafting of the skin, rashes, irritat
Chemicals - Ketones; chlorinated compounds.

h) Eye Hazards - Chemicals that affect the eye or capacity.

Signs & Symptoms - Conjunctivitis; corneal damage.
Chemicals - Organic solvents; acids.

Target Organ Toxin — A toxic substance that attacks a specific organ of the body. For exa overexposure to carbon tetrachloride can cause liver damage.

TCC — Tag (Tagliabue) Closed Cup. (See Flashpoint).

TCL — Toxic concentration low, the lowest concentration of a gas or vapor capab producing a defined toxic effect in a specified test species over a specified tim

TDL — Toxic dose low, lowest administered dose of a material capable of producing a defined toxic effect in a specified test species.

Toratogen — A substance or agent, exposure to which by a pregnant female can result in malformations in the fetus.

Tfx — Toxic effect(s).

Threshold — The level where the first effects occur; also the point at which a person just begins to notice a tone (sound) is becoming audible (OSHA Usage).

TLV — Threshold Limit Value is a term used by ACGIH to express the airborne concentration of material to which nearly all persons can be exposed day after day without adverse effects. ACGIH expresses TLVs in three ways:

TLV-TWA: The allowable Time-Weighted Average concentration for a normal 8-hour workday or 40 hour workweek.

TLV-STEL: The Short-Term Exposure Limit, or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods, and provided the daily TLV-TWA is not exceeded).

TLV-C: The ceiling exposure limit - the concentration that should not be exceeded even instantaneously.

TOC — Tag Open Cup. (See Flashpoint).

Toxic A chemical failing within any of the following categories:

a) A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

b) A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

c) A chemical that has a median lethal concentration (LD50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Toxic Substance Any substance that can cause acute or chronic injury to the human body, or which is suspected of being able to cause diseases or injury under some conditions.

Toxicity The sum of adverse effects resulting from exposure to a material, generally, by the mouth, skin, or respiratory tract.

Trade Name The trademark name or commercial trade name for a material or product.

Transplacental An agent that causes physical defects in the developing embryo.

TSCA Toxic Substances Control Act (Federal Environmental Legislation administered by EPA) regulates the manufacture, handling, and use of materials classified as 'toxic substances."

TSDF Treatment, Storage, or Disposal Facility

TWA Time-Weighted Average exposure to the airborne concentration of a material to which a person is exposed, averaged over the total

	exposure time - generally the total workday (8 to 12 hours). (Also see TLV).
UEL, or UFL	Upper Explosive Limit or Upper Flammable Limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too "rich" to bum. Also see LEL.
ug	Microgram, one-millionth of a gram.
UN Number	United Nations Identification Number. When UN precedes a four digit number, it indicates this identification number is used internationally to identify a hazardous material. (i.e., UN 1203).
Unstable	Tending toward decomposition or other unwanted chemical change during normal handling or storage.
Unstable Reactive	A chemical that, in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shocks, pressure, or temperature.
USDA	U.S. Department of Agriculture
Vapor	The gaseous form of a solid or liquid substance as it evaporates.
Vapor density	The weight of a vapor or gas compared to the weight of an equal volume of air is an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0 (examples: acetylene, methane, hydrogen). Materials heavier than air (examples: propane, hydrogen sulfide, ethane, butane, chlorine, sulfur dioxide) have vapor densities greater than 1.0. All vapors and gases will mix with air, but the lighter materials will tend to rise and dissipate (unless confined). Heavier vapors and gases are likely to concentrate in low places - along or under floors, in
Vapor density (continued)	sumps, sewers, and manholes, in trenches and ditches - where they may create fire or health hazards.

Vapor Pressure

The pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 1 00" F, and the vapor pressure is expressed as pounds per square inch (psig or psia), but vapor pressures reported as MSDS's are in millimeters or mercury (mmHg) at 680 F (20" C), unless stated otherwise. Three facts are important to remember

1 . Vapor pressure of a substance at 100' F will always be higher than the vapor pressure of the substance at 680 F (20" C).

2. Vapor pressures reported on MSDS's in mm/Hg are usually very low pressures; 760 mm/Hg is equivalent to 14.7 pounds per square inch.

3. The lower the boiling point of a substance, the higher its vapor pressure.

Ventilation

See General Exhaust, Local Exhaust, and Mechanical Exhaust.

Vermiculite

An expanded mica (hydrated magnesium-aluminum-iron silicate) used as sorbent for spill control and cleanup.

Viscosity

The tendency of a fluid to resist internal flow without regard to its density.

Volatility

A measure of how quickly a substance forms a vapor at ordinary temperatures.

Water Disposal Methods

Proper disposal methods for contaminated material, recovered liquids or solids, and their containers.

Water-Reactive

A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work Area

A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace

An establishment at one geographical location containing one or more work areas.

Zinc Fume Fever

A condition brought on by inhalation of zinc oxide fume characterized by flu-like symptoms with a metallic taste in the mouth, coughing, weakness, fatigue, muscular pain, and nausea, followed by fever and chills. The onset of symptoms occurs four to twelve hours after exposure.

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WELLAND CHEMICAL, INC.
MATERIAL SAFETY DATA SHEET

Attachment: E

1. CHEMICAL AND PRODUCT IDENTIFICATION:

MSDS NUMBER:	NWMSDS.003
PRODUCT NAME:	Weak Nitric Acid
SYNONYMS:	Nitric Acid
CHEMICAL FAMILY:	Inorganic Acid
Revision Date:	June 1, 1998
Date Printed:	June 24, 1998

MANUFACTURER/DISTRIBUTOR: Welland Chemical Inc.
PO Box 26
Newell, PA 15466

PRODUCT INFORMATION:	724-938-2237
TRANSPORT EMERGENCY:	724-938-2237
CHEMTREC:	800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	CAS Number	%
* NITRIC ACID	7697-37-2	34-70
WATER	7732-18-5	30-66

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

GRADES: 26(35.0), 36(52.3), 38(56.5), 40(61.4), 42(67.2) — Be(%HNO_3)

3. HAZARDS IDENTIFICATION

NFPA RATINGS		
	Health:	4
	Flammability:	0
	Reactivity:	0
	Unusual Hazard:	Oxidizer

SAL CHEMICAL CO., INC.
Half Moon Industrial Park
3036 Birch Drive
Weirton, WV 26062

Phone (304) 748-8200
Fax (304) 797-8751

M-7C

EMERGENCY OVERVIEW:

Color: Colorless to light brown
Physical Form: Liquid
Odor: Acrid, Irritating
Major Health Hazards: Respiratory tract burns, skin burns, eye burns, mucous membrane burns
Physical Hazards: May ignite combustibles, May react violently with water at normal temperature and pressure

POTENTIAL HEALTH EFFECTS

Inhalation: Short Term Exposure- burns, death
Long Term Exposure- same effects as listed in short term exposure

Skin Contact: Short Term Exposure- burns
Long Term Exposure- same effects as listed in short term exposure

Eye Contact: Short Term Exposure- burns
Long Term Exposure- same effects as listed in short term exposure

Ingestion: Short Term Exposure- burns
Long Term Exposure- same effects as listed in short term exposure

Carcinogen Status: OSHA: No
NTP: No
IARC: No

4. FIRST AID

INHALATION: When safe to enter area, immediately remove from exposure. Be prepared to perform CPR and support respirations. Administer oxygen via high flow mask. Keep warm and dry. SEEK medical attention immediately.
SKIN CONTACT: Remove contaminated clothing, shoes and jewelry immediately. Flush with large amounts of water until no evidence of product remains. A minimum of 15-20 minutes of flushing is recommended. Treat burns with loose, dry, sterile, dressings. SEEK medical attention immediately. Wash clothing before reuse and discard contaminated shoes.
INGESTION: Contact local poison control center. Do not induce vomiting. Never give an unconscious person anything by mouth. SEEK medical attention immediately.

NOTES TO PHYSICIAN:
Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of the compound. Creams or ointments should not be applied before or during the washing phase of the treatment. Utilize a gastric lavage to remove stomach contents.

5. FIRE FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, % BY VOLUME

Flash Point:	Will not burn but may ignite some combustibles like wood on contact
LEL:	Not applicable
UEL:	Not applicable
Autoignition:	Not applicable
Autodecomposition:	Not available

FIRE AND EXPLOSION HAZARDS

Strong oxidizer - contact with other material may cause fire or liberate toxic or flammable gases (NOx or H_2). Reacts violently with water, splattering acid. Follow appropriate National Fire Protection Association (NFPA) codes.

EXTINGUISHING MEDIA

Small fires : Dry chemical, carbon dioxide (CO_2).
Large fires : Water spray, fog or foam.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Evacuate area. Stay upwind. DO NOT get water inside any container. Use water to cool tanks or to rapidly flood fire. Wear full protective clothing, including self-contained breathing apparatus and lifeline safety harness when entering enclosed area. Shut off source of leak or ignition if possible without risk. Use care where possibility of water-acid contact exists, because of heat and fume generation. Refer to the Personal Protective Equipment section of this MSDS.

6. ACCIDENTAL RELEASE MEASURES

SPILL, LEAK, OR RELEASE

NOTE: Review FIRE AND EXPLOSION HAZARDS and SAFETY PRECAUTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.
Evacuate the area, stay far upwind. Dike spill. Control runoff, flush away with water applied rapidly to entire spill area. Neutralize washings and spill area with soda ash or lime. Comply with Federal, State, and Local regulations on reporting releases.

The CERCLA Reportable Quantity for a Corrosive Substance is 1000 lbs.

7. HANDLING AND STORAGE

Keep in well-ventilated area away from heat, sparks, and flame. Keep container tightly closed. Do not allow water to enter container. Use only clean, dry utensils in handling. Do not store with combustible, organics or other incompatible materials (Refer to the Stability and Reactivity section of this MSDS).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE: Any one handling this product should have full-face protection along with safety glasses. Consult your safety representative.

SKIN: Any one handling this product should wear chemically resistant gloves of PVC or Neoprene construction. A full coverage acid impervious suit and boots should be used for splash protection. Consult manufacturers' literature for compatibility with the PPE at your location.

RESPIRATORY: Have available and wear as appropriate for exposure conditions when handling containers or operating equipment, a NIOSH/OSHA approved respirator. Avoid use of a respirator constructed with oxidizable sorbents. For maximum protection, use supplied air or self-contained breathing apparatus.

ENGINEERING CONTROLS

Provide sufficient mechanical and local exhaust ventilation to maintain work area below recognized standards.

EXPOSURE GUIDELINES

NITRIC ACID

TLV (ACGIH) :	2 ppm (5 mg/m^3)	STEL:	4 ppm (10 mg/m^3)
PEL (OSHA) :	2 ppm (5 mg/m^3)	STEL:	4 ppm (10 mg/m^3)

NITROGEN DIOXIDE

TLV (ACGIH) :	3 ppm (5.6 mg/m^3)	STEL:	5 ppm (9.4 mg/m^3)
PEL (OSHA) :	1 ppm (1.8 mg/m^3)	STEL:	

NITRIC OXIDE

TLV (ACGIH) :	25 ppm (31 mg/m^3)
PEL (OSHA) :	25 ppm (30 mg/m^3)

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9. PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT FORMULA: HNO_3

Molecular Weight:	62.98
Boiling Point:	112 to 122°C (231 to 248°F) at 760 mm Hg.
Vapor Pressure:	8 to 11 mm Hg at 25°C (77°F) 17 to 25 mm Hg at 38° C (100°F)
Vapor Density:	>1 (Air - 1.0)
Specific Gravity:	1.21 to 1.42
Freezing Point:	-3 to -25°F (-19 to -31°C) (Typical)
Evaporation Rate:	(Butyl Acetate = 1.0) < 1
Water Solubility:	100 WT %
Ph:	Less than 1
Odor:	Acrid
Form:	Clear or Transparent Liquid
Color:	Colorless to Light Brown

10. STABILITY AND REACTIVITY

Refer to National Fire Protection Association Standard (NFPA) 491M Hazardous Chemical Reactions, 1991, for a complete listing of materials that contact with this product will result in a reaction.

Instability:	Unstable with heat. Releases toxic oxides of nitrogen.
Polymerization:	Polymerization will not occur.
Incompatibility:	Strong oxidizer. Avoid contact with metal powders, organic solvents, cyanides, sulfides, alkalies, and easily oxidizable material.
Decomposition:	May release toxic fumes such as oxides of nitrogen.

11. TOXICOLOGICAL INFORMATION

AQUATIC TOXICITY

Nitric Acid:

96-hour TLm, Mosquito Fish: 72 mg/L

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Fish Toxicity: 2.8 µg/L 96 hour(s) LC50 (Mortality) Rainbow Trout, Donaldson Trout,
Invertebrate Toxicity: 16 µg/L 48 hour(s) EC50 (Immobilization) Water Flea

FATE AND TRANSPORT:

Bioconcentration: 17560 µg/L 30 hour(s) BCFD (Residue) Aquatic Sowbug
0.87 µg/L

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Comply with Federal, State, and Local regulations for waste disposal. If approved, neutralized wastes may be drained to waste treatment plant. This product may be a RCRA Hazardous Waste upon disposal.

14. TRANSPORTATION INFORMATION

SHIPPING CONTAINERS: Tank Car, Tank Truck or ISO Tank

DOT/IMO

Proper Shipping Name:	NITRIC ACID
Hazard Class:	8
UN/NA No.:	UN 2031
DOT Label:	CORROSIVE
DOT Placard:	CORROSIVE
Packaging Group:	II
Reportable Quantity:	1000 lbs/454 kg

15. REGULATORY INFORMATION

LISTS

Extremely Hazardous Substance:	Yes
CERCLA Hazardous Substance:	Yes
TSCA Inventory:	Yes

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SARA SECTION 302:	Yes
SARA SECTION 304:	Yes
SARA SECTION 313:	Yes

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312

Acute:	Yes
Chronic:	Yes
Fire:	Yes
Reactivity:	Yes
Pressure:	No

CANADIAN WHMIS CLASSIFICATION

E

16. OTHER INFORMATION

FOR QUESTIONS ON THIS MSDS :

Mr. Paul N. Pantages
Welland Chemical Inc.
PO Box 26
Newell PA 15466
724-938-2237

This information is furnished without warranty, expressed or implied, except that is accurate to the best knowledge of Welland Chemical Inc. The data on this sheet related only to the specific material designated herein. Welland Chemical Inc. assumes no legal responsibility for use or reliance upon this data.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1			Container Information									Special Requipments								Hangar											
2	Waste Stream Name	Waste Stream Number	Hazardous Status	Container Type	Outer Container	Size (Gal)	Container Top	Materials Storage	Color Code Tape	Approved Materials	Next Step	Flammable Cabinet	Flammable Funnel	Drain Funnel	Level-Lock Rings	Equipment	2nd Containment	Signage	Bonding & Ground	Bay 1 & 2	Battery Shop	Internal Shop	Composite Shop	Sheet Metal Shop	Bay 3	Bay 4	Stores	Paint Mixing Room	GSE	Facility	Line Mnte
3	Alodine & Etch Rags	101	Yes	Plastic	1H2	55	Open	Solid	Black/White Stripe	All Alodine, Turco #5664 (WO 1), No Free Flowing Liquid	N/A				X					X				X	X	X					
4	Waste Oil	102	No	Steel	1A1	55	Closed	Liquid	Black/Yellow Stripe	Motor Oil, All Hydraulic Fluids, Greases, No Solvents, No Water, (Small Amounts of Jet A)	N/A			X			X			X						X			X		X
5	Aerosol Cans Punched	103	Yes	Steel	1A1	55	Closed	Liquid	Red/White Stripe	All Aerosols	1.) Puncher Can 2.) Allow to drain contains 3.) Dispose of can in regular trash or metal recycle	X				X			X	X						X					
6	Aerosol Cans Not-Punched	103 B	Yes	Steel	1A2	20	Open	solid	Red/White Stripe	All Aerosols	The whole can is disposed of in this waste stream	X			X																X
7	Filter Crusher	None								All fuel, motor, & hydraulic filter	1.) Empty the oil collection container into WS 102 2.) Disposal of Crushed filters into WS 104 (Maybe able to recycle)			X		X				X						X					
8	Waste Filter	104	Regulated	Steel	1A2	30	Open	Solid	Green/White Stripe	Crushed or whole filters	Crushed filter maybe recycled				X					X						X					X
9	Waste Antifreeze	105	No	Steel	1A1	55	Closed	Liquid	Red/White Checkboard	Antifreeze & Deicing Fluid				X			X												X		
10	Waste O2 Generators (Expended)	106	Yes	Steel	1H2	30	Open	Solid	Black/White Checkboard		After discharged unit and cooled, it can be then placed in this waste stream drum				X			"The O2 Products to be stored in this Area"									X				
11	Waste Paint Solid/Debris	107	Yes	Steel	1A2	55	Open	Solid	Red Solid	Paints/adhesives/epoxies sealants and items that contain. Like gloves, paper, mixing cups, tubes of seal, sanding dust, HEPA filters, etc.		X			X					X		X	X		X	X		X			X

Attachment: F

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1			Container Information									Special Requirements								Hangar											
2	Waste Stream Name	Waste Stream Number	Hazardous Status	Container Type	Outer Container	Size (Gal)	Container Top	Materials Storage	Color Code Tape	Approved Materials	Next Step	Flammable Cabinet	Flammable Funnel	Drain Funnel	Level-Lock Rings	Equipment	2nd Containment	Signage	Bonding & Ground	Bay 1 & 2	Battery Shop	Internal Shop	Composite Shop	Sheet Metal Shop	Bay 3	Bay 4	Stores	Paint Mixing Room	GSE	Facility	Line Mntc
12	Waste Paint Liquid	108	Yes	Steel	1A1	55	Closed	Liquid	Magenta Yellow Striped	- Liquid left over from a paint job -Solvent used to clean equipment or paint guns -No SOLIDS		X	X						X	X		X	X		X			X			
13	Waste Nickel Cadmium Cells	109	Yes	Plastic	1H2	55	Open	Solid			"				X		X				X										
14	Waste Nickel Cadmium Wash	110	Yes	Plastic	1H1	55	Closed	Liquid	Blue Solid	All wash and rince water form battery or cell washing	"			X			X				X										
15	Waste Oil Cans	111	No	Steel	1A1	5	Closed	Liquid		1.) Cut can top off 2.) Drain oil can for 24 hrs (NO FREEFLOWING LIQUID) 3.) Disposal can in regular trash (or Recycle 4.) Oil collected goes in WS102)						X		"Cut Can tops off and then drain"		X					X						X
16	Waste Absorbent	112	Yes	Steel	1A2	55	Open	Solid	White Solid	Pig Mats, Kit Litter					X					X						X			X		X
17	RCRA Empty Drums	113	Yes							Drums/pales that materials come in can be reused if are DOT condition. If not in DOT condition, then the drum is sent off-site as RCRA empty.	The drum must be storage on container side and all bungs must in place to ensure rain water does not enter the container																		X			X
18	Waste Beads	114	Yes	Steel	1A2	55	Open	Solid	Green Solid	1.) Waste Bead Blaster 2.) Materials sweep-up from around the blaster. 3.) Material from HEPA vacuum cleaner. 4.) Paint sanding					X						X											
19	Waste Florescence Lamps	115	Yes	Fiberboard Drum	1G	30", 48", & 95"		Solid		Building Lamps Aircraft Lamps								"Lamps can NOT be Broken"		X					X				X		
20	Used Aircraft Tires	116	No								Document the transaction. Must maintain prove that item was not disposed of in the regular trash.																X					X

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1			Container Information									Special Requipments								Hangar											
2	Waste Stream Name	Waste Stream Number	Hazardous Status	Container Type	Outer Container	Size (Gal)	Container Top	Materials Storage	Color Code Tape	Approved Materials	Next Step	Flammable Cabinet	Flammable Funnel	Drain Funnel	Level-Lock Rings	Equipment	2nd Containment	Signage	Bonding & Ground	Bay 1 & 2	Battery Shop	Internal Shop	Composite Shop	Sheet Metal Shop	Bay 3	Bay 4	Stores	Paint Mixing Room	GSE	Facility	Line Mntc
21	Waste Car/GSE Tires	117	No								Document the transaction. Must maintain prove that item was not disposed of in the regular trash.																			x	x
22	Lead Acid Batteries	118	No							Batteries must be recycles (Cord Charge)	Document the transaction. Must maintain prove that item was not disposed of in the regular trash.																			x	x
23	Waste Cartidges, Power Devices	119	No							Explosive Bolt Squibs	Explode devise and then dispose of in regular trash					X															
24	Regular Trash	120	No	Steel	N/A	55	Open	Solid	Container Painted Solid Green	Non-hazardous Waste						X		"For Non-Hazardous Waste Only"		6	1	2	1	2	6	2	2	1	1	1	x
25	Kitty Litter	121	No	Steel	N/A	55	Open	Solid	Container Painted Sand Blue	This container is to provide a reusable way to dispense kitty litter.	When this material is spent it is added to WS 112					x		"No Sanding Dust" "No Solvent"		2				2	2				2		x
26	Stripping Tank Soilds	122	Yes	Tank		2000		Solid	None	All the solids from cleaning the Stripping Tank															x						
27	Stripping Water	123	Yes	Tank		8000		Liquid	None	All the liquids from the Bay 3 Painting operation															x						

BOMBARDIER
AEROSPACE

Bombardier Aerospace
(dba West Virginia Air Center)
1999 Safety Training Plan

Summary of Safety Training Requiments

		8874	Regs	Policy to Support Training	Method	Est Class Time (Hrs)	Mgrs	Team Leaders	Safety Committee	200 C23B+	204 Spares	211 General Manager	212 HR	213 Finance	214 IT	221 CRJ	222 Embraer	223 Dash	224 Interior Shop	226 Back Shop	227 Paint	228 Facility	229 MRP	271 Doc Control	245 Engineering	246 Data Entry Coord	261 Planning	271 Quality Assurance	272 Quality Control	273 Six Sigma	280 Purchasing	281 Stores	290 Marketing	Total
		Training Opportunities																																
			Number of Employees:				8	11	12			2	3	6	1	36	46	34		28	17	3		5	1	4	8	5	22	2		24	3	251
14		Fuel Management Operations		SOP808	Future		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	X	Hazardous Waste Training: User	40CFR262	SP1219	Class	1.00		11	12							36	46	34	0	28	17	3			1				5	22			24		233
16		Hazardous Waste Training: Coodinator	40CFR262 - .260 -.261 - .268 -.280		Class	8.00			88	96											136	24													344

Current Employee Assignements
as of 1/24/00

Attachment O

Emp#	Name	Dept	Trade	Manager	Supervisor
6222	BALINT, WILLIAM F.	223	AVI	ADAMS	
6552	BEACHLER, GREGORY W.	223	AVI	ADAMS	
6501	BOORD, MARVIN K.	223	AVI	ADAMS	
6237	BURCH, JEFFREY W.	223	AVI	ADAMS	
6309	BURGWIN, WAYNE	223	AVI	ADAMS	
6248	CHESHIRE, DAVID E.	223	AVI	ADAMS	
6384	KLOSSNER, MARK S.	223	AVI	ADAMS	
6295	McCLAIN, RONALD K.	223	AVI	ADAMS	
6401	MILLER, MICHAEL D.	223	AVI	ADAMS	
6560	ROMEL, JOHN E.	223	AVI	ADAMS	
6206	THOMPSON, STEVEN L.	223	AVI	ADAMS	
6213	YOOS, JOHN H.	223	AVI	ADAMS	
			AVI Count	12	
6271	BIRKETT, DONALD L.	223	MAINT	ADAMS	
6570	BLAND, GREGORY D.	223	MAINT	ADAMS	
6566	BRYANT, NATHAN L.	223	MAINT	ADAMS	
6557	COUNTS, CHARLES G.	223	MAINT	ADAMS	
6567	CRUMIT, MICHAEL W.	223	MAINT	ADAMS	
6568	DOTSON, JOHN D.	223	MAINT	ADAMS	
6519	DUVALL, RAYMOND L.	223	MAINT	ADAMS	
6581	EADES, KIRK J.	223	MAINT	ADAMS	
6458	FRONCZEK, ROBERT J.	223	MAINT	ADAMS	
6584	HELDRETH, JOSHUA A.	223	MAINT	ADAMS	
6562	HOOD, WESLEY W.	223	MAINT	ADAMS	
6425	McCLUNG, FRED R.	223	MAINT	ADAMS	
6239	McCOLL, DAVID R.	223	MAINT	ADAMS	
6027	MIKUSH, WILLIAM J.	223	MAINT	ADAMS	
6100	MOON, JOHN W.	223	MAINT	ADAMS	
6599	PARKS, SCOTT M.	223	MAINT	ADAMS	
6565	RITER, LEE R.	223	MAINT	ADAMS	
6580	SOFLARSKY, ROBERT J.	223	MAINT	ADAMS	
6596	WILHELM, LEO	223	MAINT	ADAMS	
6339	WISZCZOR, DAVID L.	223	MAINT	ADAMS	
			MAINT Count	20	
6232	BOLTON, SUE A.	221	S/M	ADAMS	
6062	CRITES, WILLIAM J.	223	S/M	ADAMS	
6446	GREYNOLDS JR, JAMES R.	223	S/M	ADAMS	
6241	LEWIS JR, ANDREW A.	223	S/M	ADAMS	
6304	SINGLETON, CHRISTOPHER J.	223	S/M	ADAMS	
6611	SNYDER, TROY L.	223	S/M	ADAMS	
6399	TALERICO, DANA S.	223	S/M	ADAMS	
			S/M Count	7	
6308	BURGWIN, CAROL T.	221	AVI	CATRON	
2026	CLAUS, ERIC S.	221	AVI	CATRON	
6251	MORRIS, KEVIN E.	221	AVI	CATRON	
6573	OLIVER, GREGORY R.	221	AVI	CATRON	
6572	PRINGLE, JR., JACK G.	221	AVI	CATRON	
6281	YOHO, KENNETH T.	221	AVI	CATRON	
			AVI Count	6	
6463	ALFRED, CASEY D.	221	LEAD	CATRON	
6130	BASLER JR, DAVID M.	221	LEAD	CATRON	
6144	DOWLING, STEVEN L.	221	LEAD	CATRON	
6490	HACKENBERG, JAMES A.	221	LEAD	CATRON	
6448	HILL, CHAD E.	221	LEAD	CATRON	
6256	MARTINEZ, THOMAS M.	221	LEAD	CATRON	
6264	MOORE, TIMOTHY S.	221	LEAD	CATRON	

Current Employee Assignements
as of 1/24/00

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Emp#	Name	Dept	Trade	Manager	Supervisor
6481	STALNAKER, DANA H.	221	LEAD	CATRON	
			LEAD Count	8	
6558	ALBRIGHT, JOSHUA R.	221	MAINT	CATRON	
6536	ANDRICK, ADAM R.	221	MAINT	CATRON	
6411	BENNETT, CLARENCE E.	221	MAINT	CATRON	
6258	BRYANT, DAVID V.	221	MAINT	CATRON	
6564	COGAR, HAROLD L.	221	MAINT	CATRON	
6593	CORDWELL, THOMAS E.	221	MAINT	CATRON	
6563	DUVALL, JR., DAVID G.	221	MAINT	CATRON	
6548	GAGNON, MICHEL	221	MAINT	CATRON	
6126	GILBERT, MICHAEL S.	221	MAINT	CATRON	
6603	JUENGEL, BENJAMIN S.	221	MAINT	CATRON	
6574	KESTER, JOHN E.	221	MAINT	CATRON	
6576	KESTERSON, ANDREW L.	221	MAINT	CATRON	
6577	KRYSZ, KEITH T.	221	MAINT	CATRON	
6535	MALEY, ADAM W.	221	MAINT	CATRON	
6485	MASSEY, JAMES R.	221	MAINT	CATRON	
6462	McCAFFREY, PAUL J.	221	MAINT	CATRON	
6517	McCARTNEY, HARLAN E.	221	MAINT	CATRON	
6597	MESBAH, MANOUCHEHR	221	MAINT	CATRON	
6559	PYLES, CHARLES A.	221	MAINT	CATRON	
6334	RICHARDS, EDDIE R.	221	MAINT	CATRON	
624	RILEY, TIM R.	221	MAINT	CATRON	
6545	RINEHART, SCOTT	221	MAINT	CATRON	
6609	SALYER, RYAN T.	221	MAINT	CATRON	
6585	SAYRES, JOSEPH A.	221	MAINT	CATRON	
6579	SPADAFORE, JOHN M.	221	MAINT	CATRON	
6604	TAYLOR, JAMES D.	221	MAINT	CATRON	
6539	WILLIAMS, CHARLES R.	221	MAINT	CATRON	
			MAINT Count	27	
6607	ALLEN, CHRISTOPHER S.	221	S/M	CATRON	
6605	BALDWIN, DANIEL S.	221	S/M	CATRON	
6400	BENNETT, ERIC S.	221	S/M	CATRON	
6613	BERG, MATTHEW J.	221	S/M	CATRON	
6589	FERRELL, GREG S.	221	S/M	CATRON	
6569	FISHER, JAMES	221	S/M	CATRON	
6347	HOLCOMB, STERLING R.	221	S/M	CATRON	
6409	ICE, RICHARD V.	221	S/M	CATRON	
6107	JOYCE III, BERNARD J.	221	S/M	CATRON	
6340	LACOMBE, DAVID R.	221	S/M	CATRON	
6111	MILLER, JAMES D.	221	S/M	CATRON	
6578	NOVOSAD, STEVEN	221	S/M	CATRON	
6571	SHUMATE, SCOTT	221	S/M	CATRON	
6231	SINGLETON, RICHARD L.	221	S/M	CATRON	
6315	THOMPSON, JEFFERY L.	221	S/M	CATRON	
6292	UPTON, NICHOLAS D.	221	S/M	CATRON	
6429	ZECCO, SAM E.	221	S/M	CATRON	
			S/M Count	17	
6012	CLUTTER, JAMES G.	222	AVI	JOHNSON	
6504	DAVIS, JEFFREY D.	222	AVI	JOHNSON	
6388	LAMBERT, RANDALL L.	222	AVI	JOHNSON	
6505	ROY, JAMES S.	222	AVI	JOHNSON	
			AVI Count	4	
6455	ADAMS, MICHAEL J.	222	MAINT	JOHNSON	
6452	BROOKS, STEPHEN D.	222	MAINT	JOHNSON	
6029	CONTI, ROBERT W.	222	MAINT	JOHNSON	

Current Employee Assignements
as of 1/24/00

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Emp#	Name	Dept	Trade	Manager	Supervisor
6039	CUTONE, ANTHONY	222	MAINT	JOHNSON	
6583	DELAUDER, GEORGE T.	222	MAINT	JOHNSON	
6600	FLEISCHMAN, HERBERT L.	222	MAINT	JOHNSON	
6082	FOX, MICHAEL L.	222	MAINT	JOHNSON	
6608	GREGORY, TIM L.	222	MAINT	JOHNSON	
6103	JENNINGS, ALDEN B.	221	MAINT	JOHNSON	
6004	KELLEY, WILLIAM E.	222	MAINT	JOHNSON	
6228	LILLER, DOUGLAS C.	222	MAINT	JOHNSON	
6449	MOON, BRIAN A.	222	MAINT	JOHNSON	
6143	MORRISON, DANIEL K.	222	MAINT	JOHNSON	
6456	POWELL, JASON T.	222	MAINT	JOHNSON	
6457	RILEY, CHARLES D.	222	MAINT	JOHNSON	
6586	SHAFFER, RICHARD G.	222	MAINT	JOHNSON	
6547	SHEARS, JOHN K.	272	MAINT	JOHNSON	
6590	SINCLAIR, KENNETH W.	222	MAINT	JOHNSON	
6602	SINGLETON, JASON M.	222	MAINT	JOHNSON	
6166	STAGNER, GEORGE J.	222	MAINT	JOHNSON	
6592	STARK, MICHAEL J.	222	MAINT	JOHNSON	
6588	TEMPLETON, CHARLES E.	222	MAINT	JOHNSON	
6598	WRIGHT, ERNEST	222	MAINT	JOHNSON	
6582	ZIFKA, JOHN J.	222	MAINT	JOHNSON	
			MAINT Count	24	
6306	BARKER, RANDALL L.	222	S/M	JOHNSON	
6362	BURTON, HELEN M.	222	S/M	JOHNSON	
6442	CHEUVRONT, RANDALL C.	222	S/M	JOHNSON	
6002	CHILDERS, RONALD P.	222	S/M	JOHNSON	
6305	CURRY, THADDEUS W.	222	S/M	JOHNSON	
6431	DAVIS, DOUGLAS B.	222	S/M	JOHNSON	
6313	DRAIN, RANDALL L.	222	S/M	JOHNSON	
6184	HESSON, JAMES R.	222	S/M	JOHNSON	
6274	HUTCHISON, SEAN P.	222	S/M	JOHNSON	
6268	MOORE, ROGER D.	222	S/M	JOHNSON	
6507	PATTERSON, KEVIN L.	222	S/M	JOHNSON	
6366	REBROOK, KURT G.	222	S/M	JOHNSON	
6601	RIDDLE, RICHARD E.	222	S/M	JOHNSON	
6397	ROCK, RICK A.	222	S/M	JOHNSON	
6233	SINGLETON, CHARLES W.	222	S/M	JOHNSON	
6235	SINGLETON, FLOYD E.	222	S/M	JOHNSON	
6225	SKIDMORE, BETTY D.	222	S/M	JOHNSON	
6257	SWINK, JOHN A.	222	S/M	JOHNSON	
6301	WENK, MARK A.	222	S/M	JOHNSON	
			S/M Count	19	
6540	BALDWIN, MATT B.	272	Q/C	NAPIER	
6163	BAUM, DAVID F.	272	Q/C	NAPIER	
6200	BURGESS, PAUL E.	272	Q/C	NAPIER	
6216	DILLOW, DAVID D.	272	Q/C	NAPIER	
6018	DRUMMOND, KEVIN S.	272	Q/C	NAPIER	
6083	DUCKWORTH, LARRY D.	272	Q/C	NAPIER	
6285	DZIURGALSKI, MICHAEL E.	272	Q/C	NAPIER	
6418	FRANCEZ, JOHN P.	272	Q/C	NAPIER	
6551	FRIEND, EARL D.	272	Q/C	NAPIER	
6086	HARTLEY, JOSEPH R.	272	Q/C	NAPIER	
6541	HUDDLE, TODD D.	272	Q/C	NAPIER	
6538	LeBLANC, JEAN	272	Q/C	NAPIER	
6160	LUQUE, MICHAEL J.	272	Q/C	NAPIER	
6008	MARVEL, ROBERT J.	272	Q/C	NAPIER	

Current Employee Assignements
as of 1/24/00

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Emp#	Name	Dept	Trade	Manager	Supervisor
6414	MEADOWS, STEVE A.	272	Q/C	NAPIER	
6036	MINCHER, BRENT P.	272	Q/C	NAPIER	
6227	SIMMONS, JAY W.	272	Q/C	NAPIER	
6356	SNYDER, TERRY R.	272	Q/C	NAPIER	
			Q/C Count	18	
6210	HARBERT II, EDWARD W.	221	AVI	STARK	
			AVI Count	1	
6383	BANKER, JAMES S.	226	COMP	STARK	
6612	FURGASON, SAMUEL T.	226	COMP	STARK	
6112	LEVENGOOD, STANLEY K.	226	COMP	STARK	
6587	NIELSON, PAUL E.	226	COMP	STARK	
6498	POLING, MICHAEL T.	226	COMP	STARK	
6492	POWELL, JAY D.	226	COMP	STARK	
6544	RIBLETT, YULONDA	226	COMP	STARK	
6154	TARTAMELLA, LEONARD J.	226	COMP	STARK	
6390	TURNER, TRAVIS S.	226	COMP	STARK	
6537	WILFONG, WALTER D.	226	COMP	STARK	
			COMP Count	10	
6484	HARDESTY, RODNEY A.	224	INTER	STARK	
6011	JENKINS, JEFFREY J.	224	INTER	STARK	
6487	JONES, PENNY A.	224	INTER	STARK	
6415	MOORE, BELINDA J.	224	INTER	STARK	
2027	MUGNANO, THOMAS L.	224	INTER	STARK	
			INTER Count	5	
6554	ALLEN, ROY D.	227	PAINT	STARK	
6174	BAILEY, JAMES T.	227	PAINT	STARK	
6531	BOLYARD, AARON T.	227	PAINT	STARK	
6161	CAIN, JOHN P.	227	PAINT	STARK	
6119	LEGGETT, JAMES A.	227	PAINT	STARK	
6124	LINGER, MARK A.	227	PAINT	STARK	
6595	LOUGHRIE, JOHN W.	227	PAINT	STARK	
6533	LUCAS, MARLIN G.	227	PAINT	STARK	
6175	MATHENY, ROBERT F.	227	PAINT	STARK	
6553	MORGAN, MATTHEW J.	227	PAINT	STARK	
6132	NICHOLSON, BRYAN S.	227	PAINT	STARK	
6088	PAGE, MARK B.	227	PAINT	STARK	
6351	RICHARDS, MICHAEL R.	227	PAINT	STARK	
6556	SHAFFER, NATHAN T.	227	PAINT	STARK	
6291	SHIFFLETT, ROBERT E.	227	PAINT	STARK	
6550	TACY, VIRGIL	227	PAINT	STARK	
6527	WILLIAMS, HARRISON G.	227	PAINT	STARK	
6528	WOLFORD, CLIFFORD B.	227	PAINT	STARK	
			PAINT Count	18	
6610	CUTRIGHT, CHARLES T.	226	S/M BS	STARK	
			S/M Count	1	
605	AVERY, RICHARD S.	226	S/M BS	STARK	
6007	CLARK, DWAINE A.	226	S/M BS	STARK	
6591	DAVIS, RAYMOND P.	226	S/M BS	STARK	
6549	DUKE, DANIEL	226	S/M BS	STARK	
6500	ELLIS, DANIEL W.	226	S/M BS	STARK	
6179	HESS, JOHN D.	226	S/M BS	STARK	
6032	KOVACK, THOMAS F.	226	S/M BS	STARK	
6338	MARTIN, JASON J.	226	S/M BS	STARK	
6317	RIGSBY, RUSSELL A.	226	S/M BS	STARK	
6406	SANDERS, AUTHUR D.	226	S/M BS	STARK	
6113	SIGLEY, MANFRED B.	226	S/M BS	STARK	

MAURER, REID 226 S/M BS

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Current Employee Assignements

as of 1/24/00

Emp#	Name	Dept	Trade	Manager	Supervisor
6245	THOMPSON, TROY R.	226	S/M BS	STARK	
			S/M BS Count	12	
6152	HOLMES, RALPH S.	226	W/M	STARK	
6001	VERNON, ROLAND R.	226	W/M	STARK	
			W/M Count	2	
			Grand Count	211	

PHOTO LOG

Facility Name: West Virginia Air Center Location: 2400 Aviation Way, Bridgeport, WV

Photo #	Lighting Conditions	Location	Description
1	Natural Lighting Indoors	Bay 3	Overview of hazardous waste storage area.
2	Natural Lighting Indoors	Bay 3	Overview of hazardous waste storage area.
3	Natural Lighting Indoors	Bay 3	Close-up of open bung on containers holding hazardous waste.
4	Natural Lighting Indoors	Bay 3	Close-up of open top lids not closed on containers holding hazardous waste.
5	Natural Lighting Indoors	Bay 3	Same as photo # 4 with lids removed to display hazardous waste contents.
6	Natural Lighting Indoors	Bay 3	Close-up of hazardous waste label accumulation state date 9-31-99, (>90 days).
7	Natural Lighting Indoors	Bay 3	Close-up of hazardous waste label accumulation state date 10-14-99, (>90 days).
8	Natural Lighting Indoors	Paint Shop	Container of hazardous waste with no label, marking to identify the contents.
9	Natural Lighting Indoors	Bay 4	Open containers of hazardous waste in satellite accumulation area.
10	Natural Lighting Indoors	Outside the hazardous materials storage room.	Open container of hazardous waste with no label, containers of obsolete waste products.
11	Natural Lighting Indoors	Bay 4	Contaminated matting material in trash only barrel.
12	Natural Lighting Outdoors	Outside Bay 3	Hazardous waste accumulation tank and secondary containment.
13	Natural Lighting Outdoors	Outside Bay 3	Same as photo # 12, different angle
14	Natural Lighting Indoors	Bay 4	Trash only barrel with solvent soaked rag. (Rag moved for display on top edge of barrel.)
15	Natural Lighting Indoors	Bay 4	Close-up of trash barrel in photo # 14 solvent soaked rags in and on barrel.

Film Description : Kodak 200 ASA

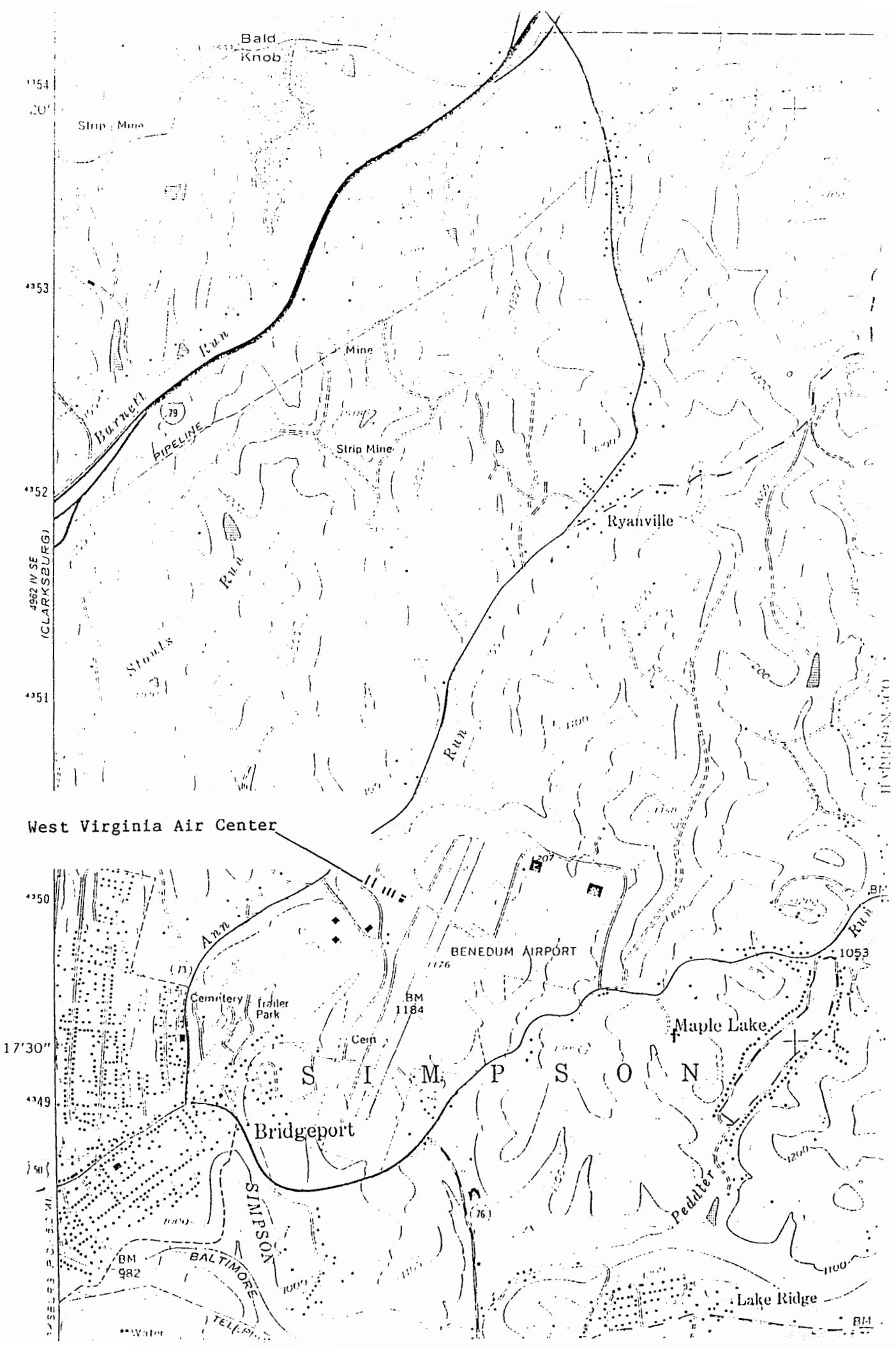
Focal Length of Lens Used: 28-80 mm

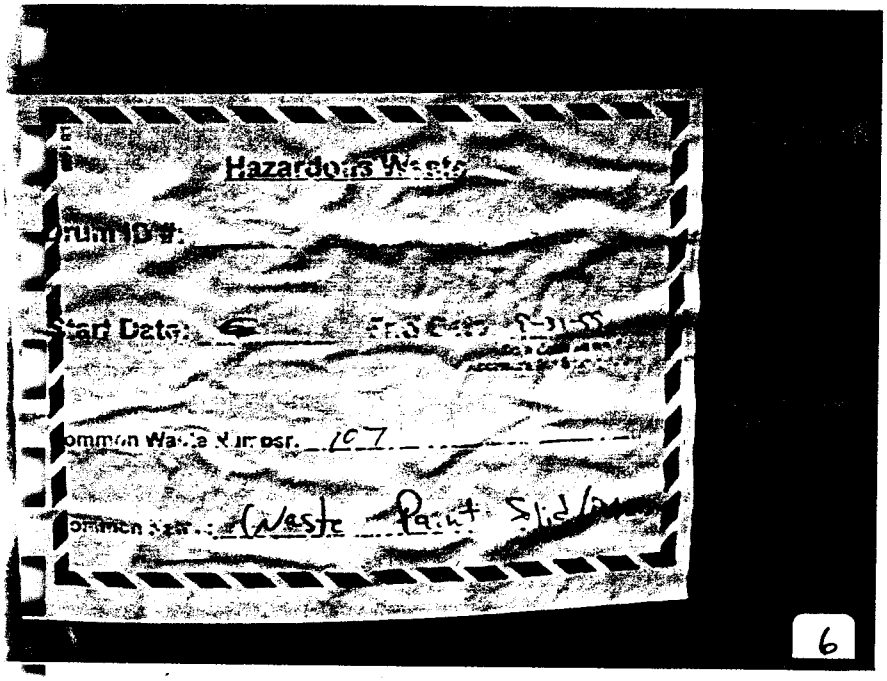
Date Photos Taken: January 27, 2000

Photographer: Joyce Moore

Developer: Superior Photo

Log Prepared By: Joyce Moore


Bald Knob
Strip Mine
Barnett Run
Mine
79
PIPELINE
Strip Mine
Ryanville
Stouts Run
Run
West Virginia Air Center
Ann
BENEDUM AIRPORT
Cemetery
trailer Park
BM 1184
Cem
Maple Lake
1053
S I M P S O N
Bridgeport
SIMPSON
BALTIMORE
BM 982
Peddler
Lake Ridge
4962 IV SE (CLARKSBURG)
1154
20'
4353
4352
4351
4350
17'30"
4349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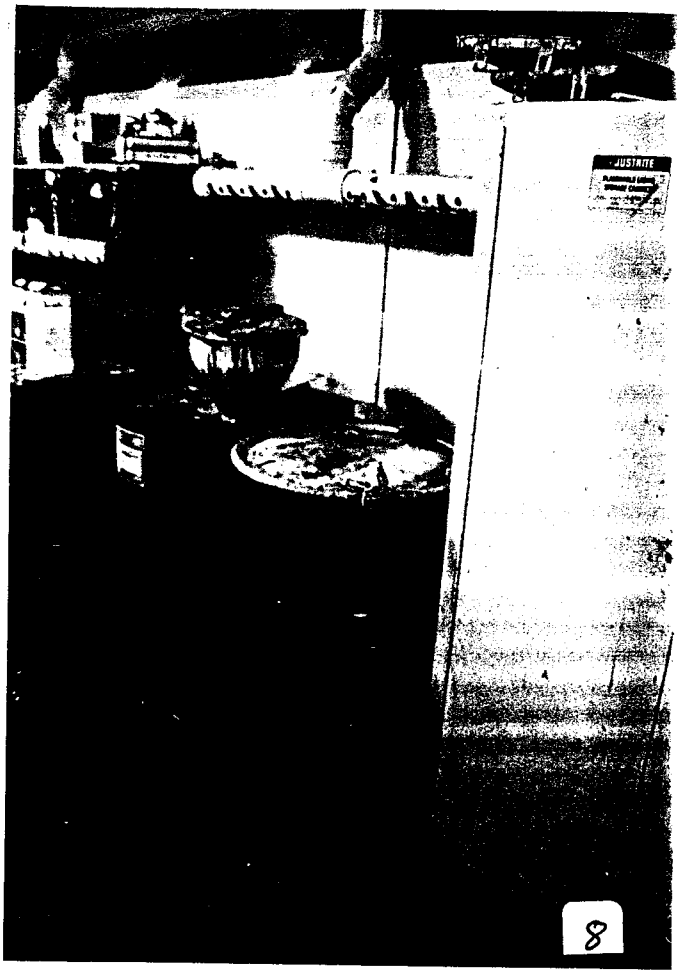
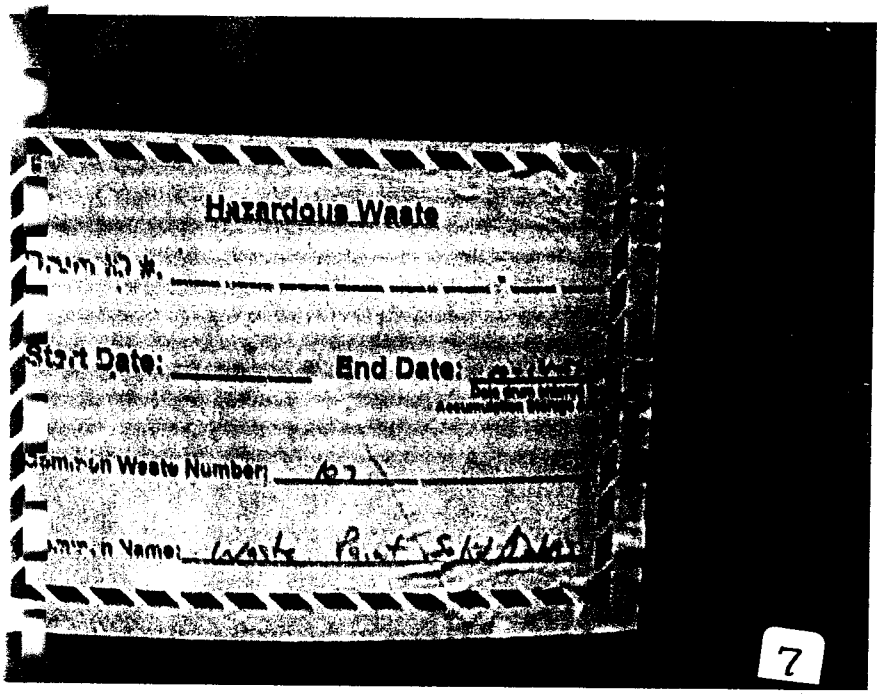
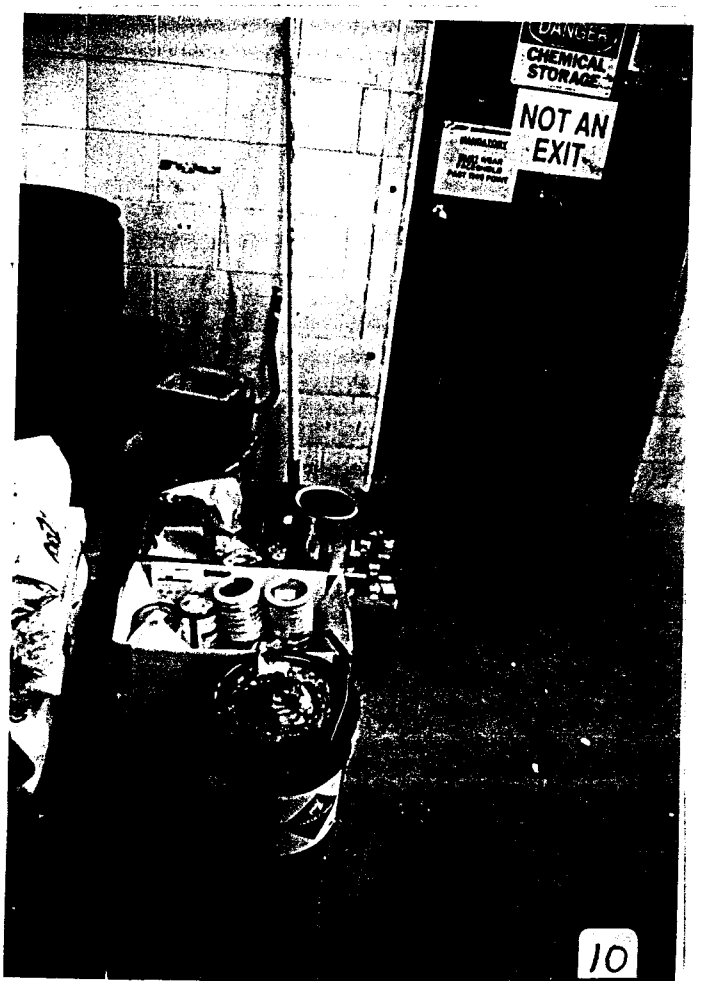
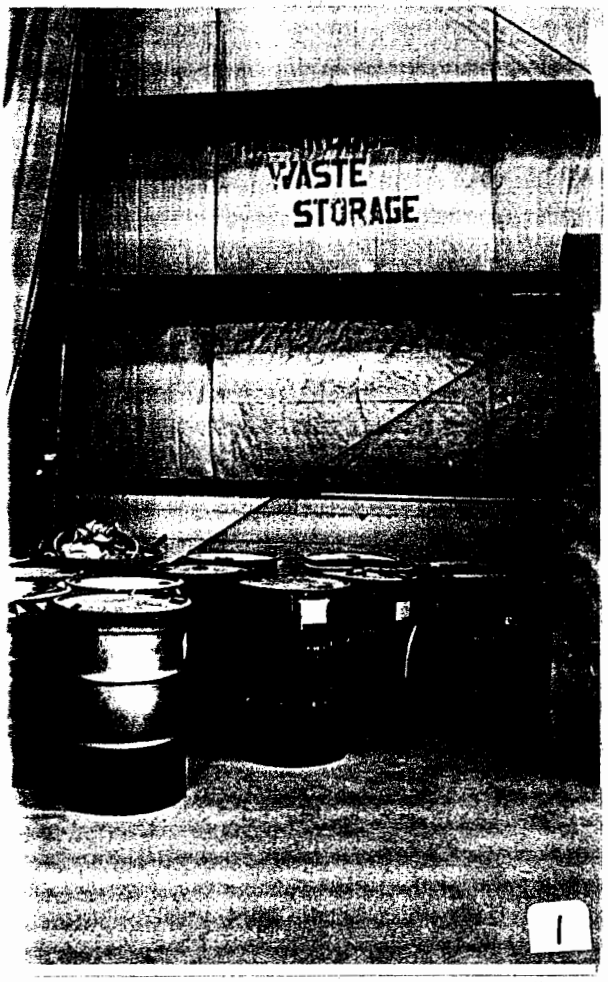
Start Date:
Common Waste Number: D07
Common Name: Waste Paint Sludge
6


JUSTRITE
8


Hazardous Waste
Start Date:
End Date:
Common Waste Number: D07
Common Name: Waste Paint Sludge
7


9


DANGER
CHEMICAL STORAGE
NOT AN EXIT
10



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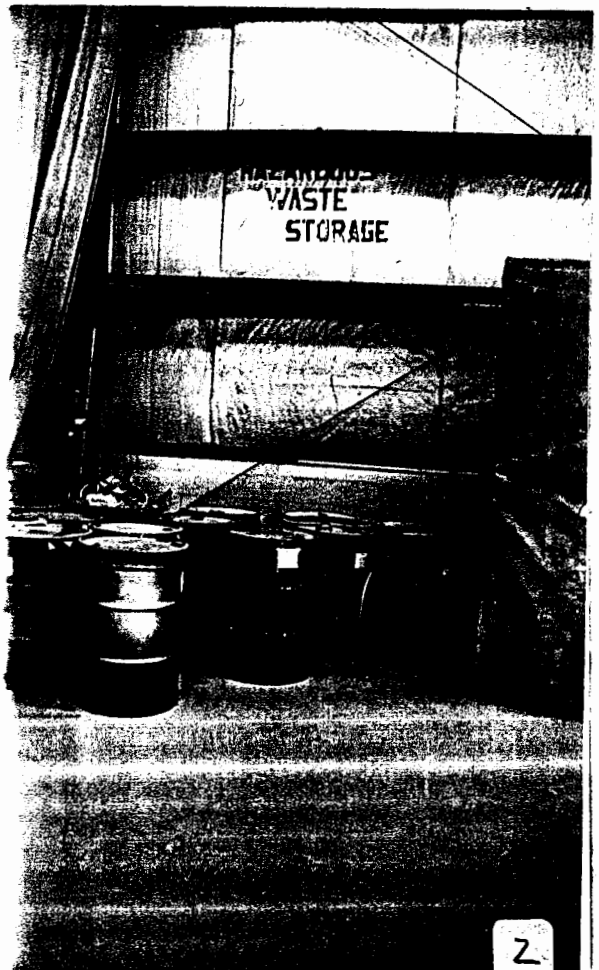

2

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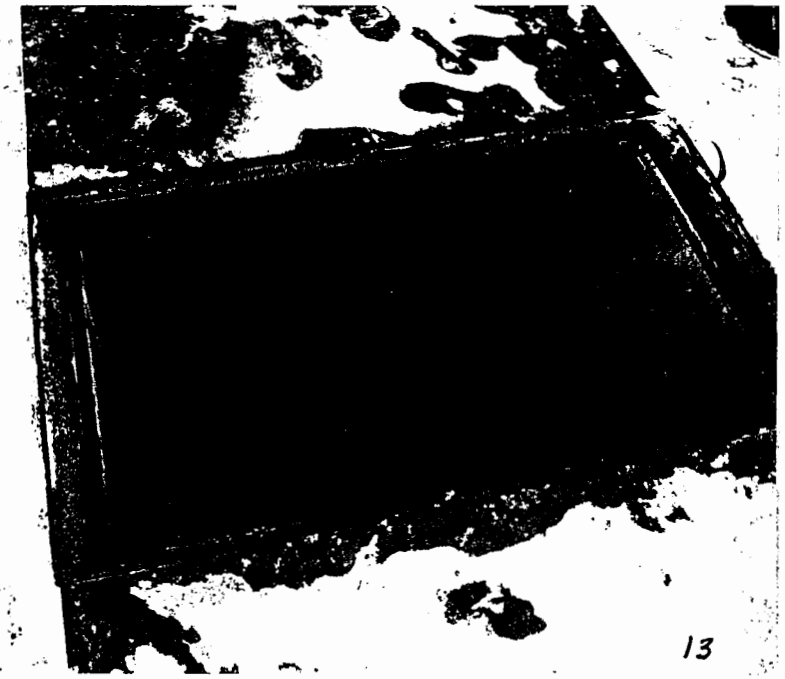
11


12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<No.12>100 22 -1 NNNNN+0960 1173

Air Center, Bridgeport, WV
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WV Air Center, Bridgeport, WV
January 27, 2000
J. Moore
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<No.13>100 22+00 NNNNN-1960 1173

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<No.14>100 22 -3 NNNNN -4AU 1172

WV Air Center, Bridgeport, WV
January 27, 2000
J. Moore
#14